PB82-127713

Water Resources Data for Montana
Water Year 1980. Volume 1: Hudson Bay Basin
Missouri River Basin

(U.S.) Geological Survey
Helena, MT

Jul 81

U.S. Department of Commerce
National Technical Information Service
NTIS

PB82-127713

Water Resources Data for Montana

Volume 1. Hudson Bay Basin
Missouri River Basin

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MT-80-1

WATER YEAR 1980

Prepared in cooperation with the State of Montana
and with other agencies

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INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA 22161

CALENDAR FOR WATER YEAR 1980

1979

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U.S. DEPARTMENT OF THE INTERIOR
March 3, 1849

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U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MT-80-1

WATER YEAR 1980

Prepared in cooperation with the State of Montana
and with other agencies

I

UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, Secretary

GEOLOGICAL SURVEY

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Helena, Montana 59601

1981

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PREFACE

This report was prepared by the U.S. Geological Survey in cooperation with the State of Montana and with other agencies, by personnel of the Montana district of the Water Resources Division under the supervision of G. M. Pike, District Chief, and A. Clebsch, Jr., Regional Hydrologist, Central Region.

This report is one of a series issued State by State under the general direction of P. Cohen, Chief Hydrologist, and R. J. Dingman, Assistant Chief Hydrologist for Scientific Publications and Data Management.

Data for Montana are in two volumes as follows:

Volume 1. Hudson Bay and Missouri River Basins

Volume 2. Upper Columbia River Basin

50272-101

REPORT DOCUMENTATION PAGE

1. REPORT NO. USGS/WRD/HD-81/087

2.

3. Recipient's Accession No. PB82 127713

4. Title and Subtitle

Water Resources Data for Montana, Water Year 1980
Volume 1. Hudson Bay and Missouri River Basins

5. Report Date July 1981

6. U310011

7. Author(s) U.S. Geological Survey

8. Performing Organization Rept. No. USGS-WDR-MT-80-1

9. Performing Organization Name and Address

U.S. Geological Survey, Water Resources Division
301 South Park Avenue, Drawer 10076
Federal Office Building, Room 428
Helena, MT 59626

10. Project/Task/Work Unit No.

11. Contract(C) or Grant(G) No.

(C)

(G)

12. Sponsoring Organization Name and Address

U.S. Geological Survey, Water Resources Division
301 South Park Avenue, Drawer 10076
Federal Office Building, Room 428
Helena, MT 59626

13. Type of Report & Period Covered

Annual - Oct. 1, 1979
to Sept. 30, 1980

14.

15. Supplementary Notes

Prepared in cooperation with the State of Montana and with other agencies.

16. Abstract (Limit: 200 words)

Water resources data for the 1980 water year for Montana consist of records of stage, discharge, and water quality of streams; stage, contents and water quality of lakes and reservoirs; and water levels in wells. Volume 1 of this report contains discharge records for 176 gaging stations; stage only records for 1 lake station; stage/contents for 6 lakes and reservoirs; water quality for 118 stations; water levels for 9 observation wells. Also included are 141 crest-stage partial-record stations and 23 smaller reservoirs. Additional water data were collected at various sites, not part of the systematic data collection programs, and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Montana.

17. Document Analysis a. Descriptors

*Montana, *Hydrologic data, *Surface water, *Ground water, *Water quality, Flow rate, Gaging stations, Lakes, Reservoirs, Chemical analyses, Sediments, Water temperatures, Sampling sites, Water levels, Water analyses.

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement No restriction on distribution
This report may be purchased from:
National Technical Information Service
Springfield, VA 22161

19. Security Class (This Report) Unclassified

20. Security Class (This Page) Unclassified

21. No. of Pages 667

22. Price

(See ANSI-Z39.18)

See Instructions on Reverse

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

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(Letter after station name designates types of data: (d) discharge, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment, (e) elevations or contents)

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WATER RESOURCES DATA FOR MONTANA, 1980

Volume 1: Hudson Bay and Missouri River Basins
Volume 2: Upper Columbia River Basin

INTRODUCTION

Water resources data for the 1980 water year for Montana consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water-levels of ground-water wells. This volume contains records for water discharge at 176 gaging stations; stage only at 1 lake station; stage and contents at 6 lakes and reservoirs; water quality at 78 gaging stations, 40 water-quality stations; and water levels at 9 observation wells. Also included are data for 141 crest-stage partial-record stations and 23 smaller reservoirs. Additional water data were collected at various sites, not involved in the systematic data collection program, and are published as miscellaneous measurements. A few pertinent stations in bordering States are also included in this report. Also, numerous stations in Canada operated for the International Joint Commission under cooperative agreement with the U.S. Department of State are included in the above. Locations of gaging stations are shown in figure 3, ground-water observation wells are shown on figure 4, and water-quality stations are shown on figure 4. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Montana.

Records of discharge or stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the Unites States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities of the United States or may be purchased from Branch of Distribution, U.S. Geological Survey, 1200 South Eads Street, Arlington, VA 22202.

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records beginning with the 1964 water year, and ground-water data since the 1971 water year have been similarly released either in separate reports or in conjunction with streamflow records.

Beginning with the 1975 water year, water data for streamflow, water quality, and ground water are published in official Survey reports on a State-boundary basis. These official Survey reports carry an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report 80-1". For archiving and general distribution, the reports for water years 1971-74 are also identified as water-data reports. These water-data reports are for sale, in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the district chief at the address given on the back of the title page or by telephone (406) 449-5263.

COOPERATION

The U.S. Geological Survey and organizations of the State of Montana have had cooperative agreements for the systematic collection of streamflow records since 1906, for ground-water levels since 1964, and for water-quality records since 1946. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

Montana Department of Natural Resources and Conservation
L. Berry, director

Montana State Highway Commission
G. Wicks, director of highways

Montana Department of Fish, Wildlife, and Parks
J. W. Flynn, director

Montana Department of Health and Environmental Sciences
Dr. J. J. Drynan, director

Montana State University
J. Jutila, vice-president for research

Montana Bureau of Mines and Geology
S. L. Groff, director

Assistance in the form of funds or services was given by the U.S. Department of State-International Joint Commission, Water Ways Treaties, in collecting records published in this volume for 48 gaging stations and 3 water-quality stations; by the Corps of Engineers, U.S. Army, for 15 gaging stations and 2 water-quality stations; by the Bureau of Land Management, U.S. Department of the Interior, for 5 gaging stations and 40 water-quality stations; by the Environmental Protection Agency for 6 water-quality stations; and the U.S. Bureau of Reclamation (formerly Water and Power Resources Service), U.S. Department of the Interior, for 10 gaging stations.

On waters adjacent to the international boundary, certain gaging stations are maintained by the United States (or Canada) under agreement with Canada (or the United States) and the records are obtained and compiled in a manner equally acceptable in both countries. Those stations are designated herein as "International gaging stations."

Organizations that supplied data are acknowledged in station descriptions.

Some records have been collected and computed by contractors in accordance with U.S. Geological Survey specifications and under Geological Survey quality control.

ACKNOWLEDGMENT

Montana district personnel who contributed significantly to the collection and preparation of the data in this report were: R. R. Shields, chief, Hydrologic Surveillance and Analysis Section, assisted by J. H. Diamond, M. K. White, J. R. Knapton, M. M. Hiner, C. O. Geiger, L. A. Merritt, L. L. Hull, E. J. Blank, and S. D. Waltemeyer.

HYDROLOGIC CONDITIONS

1980 water year streamflow was sightly below average to average statewide. In eastern Montana, streamflow began the water year below average and remained in this range in the mid to lower portion of the Yellowstone River basin until December. Similarly, streamflow in the upper Yellowstone River basin was below average until February and the Marias River basin (in northcentral Montana) recorded flows below average until April, excluding December when daily flows were in the average range. During the months of April and May, above normal temperatures increased streamflow into the normal range in most areas of eastern Montana except at two reporting index stations. At these stations, Rock Creek near Red Lodge (drainage area, 124 mi^2) and Yellowstone River at Billings (drainage area, 11,795 mi^2), the monthly streamflow was well above normal, 120 to 195 percent of average. Beginning in June and continuing through the remainder of the water year, streamflow at most eastern Montana stations once again receded into the below-average range.

Generally most lakes and irrigation reservoirs east of the Continental Divide were within the average range during the water year. Notable exceptions were Lima Reservoir, in southwestern Montana, which was below average during the months of October through March; irrigation reservoirs in northcentral Montana, which were below average 11 of the 12 months; Bighorn Lake, which was in the above-average range all year; and Tongue River Reservoir, located in southeastern Montana, which had below-average contents 9 of the 12 reporting months.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report are defined below. See also the table for converting Inch-Pound units to International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,500 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer, tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or faculative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which produce colonies within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of disolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass valued of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artifical structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (FT^3/s, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Instantaneous discharge is the discharge at a particular instant of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Dissolved is that material in a representative water sample which passes through a 0.45 µm membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the samples are the same, to some positive number, when some or all the organisms in the sample are different.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Map; each hydrologic unit is identified by an 8-digit number.

Micrograms per gram (µg/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Organism is any living entity, such as an insect, phytoplanter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m^2), acres, or hectares. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle-size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay	0.00024 - 0.004	Sedimentation.
Silt	.004 - .062	Sedimentation.
Sand	.062 - 2.0	Sedimentation or sieve.
Gravel	2.0 - 64.0	Sieve.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Periphyton are microorganisms attached to and growing upon solid surfaces. While primarily consisting of algae, the periphyton also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton are useful indicators of water quality.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

Picocurie (PC, pCi) is one trillionth (1 x 10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7 x 10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Chlorophyta (green algae) have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats of floating "moss" in lakes.

Chrysophyta (yellow-green algae, yellow-brown algae, and diatoms) have pigments in which yellow-green to golden-brown are predominate. The cell wall of these organisms, especially diatoms, often consists of two overlapping halves which are highly silicified.

Cryptophyta (cryptomonads) have pigments that are usually brown but also occur as red, blue or grass green. The cells are motile with two flagella and occur in freshwaters sometimes rich in organic and in nitrogenous materials.

Cyanophyta (blue-green algae) are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Euglenophyta (euglenoids) are motile cells usually with one flagella and have a dominant grass-green pigment. They often occur in small pools rich in organic matter and are frequently present in sufficient amounts to color the water or the damp mud along river banks.

Pyrrhophyta (fire algae) have greenish tan to golden brown pigments. The cells are motile usually with two flagella. The fresh water forms are most abundant in pools, ditches, and small lakes with considerable vegetation.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area per unit time (mg C/m^2.time) for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil charecteristics, land usage, and quantity and intensity of precipitation.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Sodium-absorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions with soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance derived from the atmosphere, vegetables, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artifical substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is the part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 {m membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determination of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sample that is retained on a 0.45 {m membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determination of "suspended, total" constituents are made either by analyzing portions of material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata is the following:

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Eohemeroptera
Family	Ephemeridae
Genus	Hexagenia
Species	Hexagenia limbata

Thermograph is a thermometer than continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the presence of a thermograph or a digital mechanism that records water temperature in a digital format on punched paper tape.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample).

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Turbidity of a sample is the reduction of transparency due to the presence of particulate matter. In this report it is expressed in Nephelometric turbidity units (NTU), obtained from the Nephelometric method for turbidity determination which measures the intensity of light scattered by suspended particles at 90 degrees from the path of an incident light source.

Water year in Geological Survey reports dealing with surface-water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1980, is called the "1980 water year."

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WRD is used as an abbreviation for "Water-Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBER

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated, with respect to the stream to which it is immediately tributary, is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station, such as 06090500, which appears just to the left of the station name includes the 2-digit part number "06" plus the 6-digit, downstream order number "090500." In this report, the records are listed in downstream order by parts. The part number refers to an area whose boundaries coincide with certain natural drainage lines. Records in this report are in Part 5 (Hudson Bay basin), Part 6 (Missouri River basin) and Part 12 (Upper Columbia River basin). All records for a drainage basin encompassing more than one State can be arranged in downstream order by assembling pages from the various State reports by station number to include all records in the basin.

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 1 on following page.

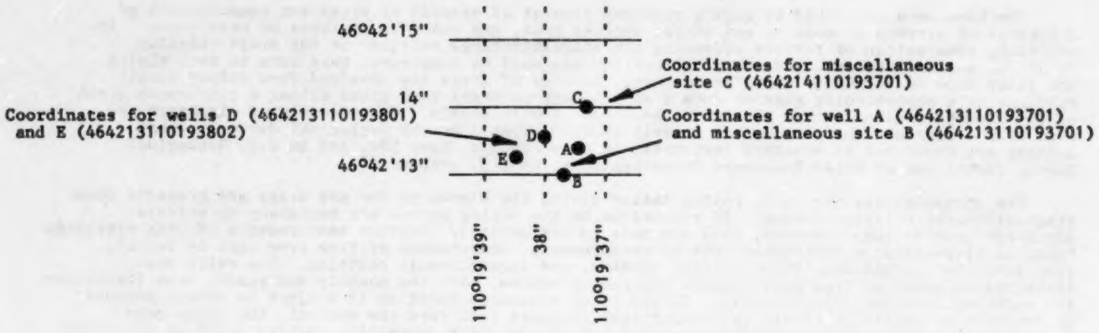

46°42'15"
Coordinates for miscellaneous site C (464214110193701)
14"
C
Coordinates for wells D (464213110193801) and E (464213110193802)
Coordinates for well A (464213110193701) and miscellaneous site B (464213110193701)
D
E
A
B
46°42'13"
110°19'39"
38"
110°19'37"

Figure 1. System for numbering wells and miscellaneous sites (latitude and longitude)

SPECIAL NETWORKS AND PROGRAMS

Some of the stations for which data are published in this report are included in special networks and programs. These stations are identified by their title, set in parentheses, under the station name.

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin. Stations in this network are listed below:

05014500	Swiftcurrent Creek at Many Glacier, MT
06169500	Rock Creek below Horse Creek at international boundary

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. A real configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict a real variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality. Stations in this network are listed below:

Volume 1:	05020500	St. Mary River at international boundary
	06054500	Missouri River at Toston, MT
	06101500	Marias River near Chester, MT
	06109500	Missouri River at Virgelle, MT
	06115200	Missouri River near Landusky, MT
	06130500	Musselshell River at Mosby, MT
	06132000	Missouri River below Fort Peck Dam
	06174500	Milk River at Nashua, MT
	06185500	Missouri River near Culbertson, MT
	06214500	Yellowstone River at Billings, MT
	06294700	Bighorn River at Bighorn, MT
	06308500	Tongue River at Miles City, MT
	06326500	Powder River near Locate, MT
	06329500	Yellowstone River near Sidney, MT
Volume 2:	12355000	Flathead River at Flathead, British Columbia
	12363000	Flathead River at Columbia Falls, MT

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and Computation of Data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observation of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard textbooks, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmetic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharges are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method, in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some stream-gaging stations in Montana the stage-discharge relation is usually affected by ice from November to March, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir stations, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of depositon of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys, the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging station on streams or canals, a table showing the daily discharge and monthly and yearly discharge is given. For gaging station on lakes and reservoirs, a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30. Records for some gaging stations on streams or canals in Canada and along the international boundary are published on an irrigation season basis and the tables of daily discharge generally show data from March through October. A calendar for the current water year is shown on the reverse side of the back cover to facilitate finding the day of the week for any date.

The description of the gaging station gives the location, drainage area, period of record, notations of revision of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from the most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the U.S. Army Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years, only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use; the datum of the present gage referred to National Geodetic Vertical Datum; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITION OF TERMS" on page 2.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations, information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In the "EXTREMES" paragraph, the extremes for period of record is given first, information available outside the period of record is given next, and finally, those for the current year. Unless otherwise qualified, the maximum discharge (or contents), is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations, peak discharges are listed with "EXTREMES FOR THE CURRENT YEAR"; if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharges for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of Field Data and Computed Results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to the use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other Data Available

Information of a more detailed nature than that published for most of the gaging stations, such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information of the availability of unpublished data or statistical analyses may be obtained from the district office.

Publications

The annual series of water-supply papers that give information on quantity of surface waters in Montana are given in the following table. Data for the Hudson Bay basin is given in Part 5, for the Missouri River basin in Part 6, and for the Upper Columbia River basin in Part 12.

Table 1.--Water-supply paper numbers containing results of stream measurements in Montana 1899-1970, including compilation reports.

Year	Part 5	Part 6	Part 12
1899	36	36,37	38
1900	49	49	51,52
1901	65,66,75	66,75	66,75
1902	83,85	84	85
1903	98,99,100	99	100
1904	128,130	130	135
1905	171	172	178
1906	207	208	214
1907	245	246	252
1908	245	246	252
1909	265	266	272
1910	285	286	292
1911	305	306	312
1912	325	326	332A
1913	355	356	362A
1914	385	386	392
1915	405	406	412
1916	435	436	442
1917	455	456	462
1918	475	476	482
1919	505	506	512
1920	505	506	512
1921	525	526	532
1922	545	546	552
1923	565	566	572
1924	585	586	592
1925	605	606	612
1926	625	626	632
1927	645	646	652
1928	665	666	672
1929	685	686	692
1930	700	701	707
1931	715	716	722
1932	730	731	737
1933	745	746	752
1934	760	761	767
1935	785	786	792
1936	805	806	812
1937	825	826	832
1938	855	856	862
1939	875	876	882
1940	895	896	902
1941	925	926	932
1942	955	956	962
1943	975	976	982
1944	1005	1006	1012
1945	1035	1036	1042
1946	1055	1056	1062
1947	1085	1086	1092
1948	1115	1116	1122
1949	1145	1146	1152
1950	1175	1176	1182
1951	1208	1209	1216
1952	1238	1239	1246
1953	1278	1279	1286
1954	1338	1339	1346
1955	1388	1389	1396
1956	1438	1439	1446
1957	1508	1509	1516
1958	1558	1559	1566
1959	1628	1629	1636
1960	1708	1709	1716
1961-65	1913	1916	1933
1966-70	2113	2116	2133
1950 Compilation	1308	1309	1316
1960 Compilation	1728	1729	1736

Records of Discharge Collected by Agencies Other than the Geological Survey

Records of discharge not published by the Geological Survey have been collected at numerous sites by many other Federal, State, County, City, local agencies, and by private organizations. The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, VA 22092, maintains an index of such sites. Information on records at specific sites can be obtained upon request.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and Examination of Data

Surface-water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, water temperatures, sediment discharge, etc.); extremes for the period of daily record; extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water Analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean conentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

Prior to the 1968 water year, data for chemical constituents and concentrations of suspended sediment were reported in parts per million (ppm) and water temperatures were reported in degrees Fahrenheit (°F). In October 1967, the Geological Survey began reporting data for chemical constituents and concentrations of suspended sediment in milligrams per liter (mg/L) and water temperatures in degrees celsius (°C). In waters with a density of 1.000 grams per milliliter (g/mL), parts per million and milligrams per liter can be considered equal. In waters with a density greater than 1.000 g/mL, values in parts per million should be multiplied by the density to convert to milligrams per liter.

In October 1968, the Geological Survey began reporting many of the chemical constituents as well as the minor elements in micrograms per liter instead of milligrams per liter. See "Definition of Terms" for converting English units to SI units.

Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

For stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

At stations where recording instruments are used, either maximum and minimum temperatures, or maximum, minimum, and mean temperatures for each day are published.

Table 2.--Descriptor values for weather conditions.

0	Cloudless
1	Partly cloudy
2	Cloudy
3	Overcast
10	Precipitation within sight
13	Ugly, threatening sky
40	Fog
50	Drizzle
51	Slight drizzle, intermittent
52	Slight drizzle, continuous
53	Moderate drizzle, intermittent
54	Moderate drizzle, continuous
55	Thick drizzle, intermittent
56	Thick drizzle, continuous
57	Drizzle and fog
58	Slight or moderate drizzle and rain
59	Thick drizzle and rain
60	Rain
61	Slight rain, intermittent
62	Slight rain, continuous
63	Moderate rain, intermittent
64	Moderate rain, continuous
65	Heavy rain, intermittent
66	Heavy rain, continuous
67	Rain and fog
68	Slight or moderate mixed rain and snow
69	Heavy mixed rain and snow
70	Snow or sleet
71	Slight snow in flakes, intermittent
72	Slight snow in flakes, continuous
73	Moderate snow in flakes, intermittent
74	Moderate snow in flakes, continuous
75	Heavy snow in flakes, intermittent
76	Heavy snow in flakes, continuous
77	Snow and fog
78	Granular snow (frozen drizzles)
79	Ice crystals
80	Showers
81	Slight or moderate rain shower (s)
82	Heavy rain shower (s)
83	Slight or moderate snow shower (s)
84	Heavy snow shower (s)
85	Slight or moderate rain and snow shower (s)
86	Heavy rain and snow shower (s)
87	Granular snow shower (s)
88	Slight or moderate hail or rain and hail shower (s)
90	Thunderstorm
93	Slight thunderstorm with rain or snow
94	Slight thunderstorm with hail
95	Moderate thunderstorm with rain or snow
96	Moderate thunderstorm with hail
97	Heavy thunderstorm with rain or snow
99	Heavy thunderstorm with hail

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross-section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross section.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the period, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

Publications

The annual series of water-supply papers that give information on quality of surface waters in Montana are shown in the following table. Data for Hudson Bay and Missouri River basins are given in parts 5-6 and data for Upper Columbia River basin are given in part 12.

Table 3.--Water-supply paper numbers and parts, water years, 1947-70.

Year	Parts 5-6	Part 12	Year	Parts 5-6	Part 12
1947	1102	----	1959	1643	1645
1948	1132	----	1960	1743	1745
1949	1162	----	1961	1883	1885
1950	1187	----	1962	1943	1945
1951	1198	1200	1963	1949	1951
1952	1251	1253	1964	1956	1959
1953	1291	1293	1965	1963	1966
1954	1351	1353	1966	1993	1996
1955	1401	1403	1967	2013	2016
1956	1451	1453	1968	2095	2100
1957	1521	1523	1969	2145	2150
1958	1572	1574	1970	2155	2160

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the Data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figure 1.

Measurements are made in many types of wells, under varying conditions of access and at different temperatures; hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either National Geodetic Vertical Datum of 1929 or land-surface datum (lsd). National Geodetic Vertical Datum of 1929 is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above National Geodetic Vertical Datum of 1929 is given in the well description. The height, or the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth of a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

Publications

Publication of ground-water level data for the United States in water-supply papers was begun by the Geological Survey in 1935. From 1935 through 1939, a single water-supply paper for each year covering the entire nation was issued (Water-Supply Papers--777, 817, 840, 845, and 886). From 1940 through 1974, separate water-supply papers were issued for 6 sections of the United States. Water-level data for Montana are in the water-supply papers listed in the following table, each report containing one or more calendar years (January-December) of data. Data in this report are for the 12-month water year ending September 30.

Table 4.--Water-supply paper numbers for Northwestern United States, calendar years 1940-1974

Year	WSP No.	Year	WSP No.	Year	WSP No.
1940	910	1947	1100	1954	1325
1941	940	1948	1130	1955	1408
1942	948	1949	1160	1956-60	1760
1943	990	1950	1169	1961-65	1845
1944	1020	1951	1195	1966-70	1980
1945	1927	1952	1225	1971-74	2161
1946	1075	1953	1269		

Information about reports and other data on ground water in Montana may be obtained from the district office, at the address given on the back of the title page.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, i. limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature--influential factors, field measurement, and data presentation,* by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents,* by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.

2-D1. *Application of surface geophysics to ground-water investigations,* by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.

2-E1. *Application of borehole geophysics to water-resources investigations,* by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.

3-A1. *General field and office procedures for indirect discharge measurements,* by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.

3-A2. *Measurement of peak discharge by the slope-area method,* by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. *Measurement of peak discharge at culverts by indirect methods,* by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. *Measurement of peak discharge at width contractions by indirect methods,* by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.

3-A5. *Measurement of peak discharge at dams by indirect methods,* by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.

3-A6. *General procedure for gaging streams,* by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.

3-A7. *Stage measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.

3-A8. *Discharge measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

3-A11. *Measurement of discharge by moving-boat method,* by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.

3-B1. *Aquifer-test design, observation, and data analysis,* by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction,* by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

3-C1. *Fluvial sediment concepts,* by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

3-C2. *Field methods for measurement of fluvial sediment,* by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.

3-C3. *Computation of fluvial-sediment discharge,* by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.

4-A1. *Some statistical tools in hydrology,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

4-A2. *Frequency curves,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.

4-B1. *Low-flow investigations,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. *Storage analyses for water supply,* by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. *Regional analyses of streamflow characteristics,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.

4-D1. *Computation of rate and volume of stream depletion by wells,* by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments,* by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.

5-A2. *Determination of minor elements in water by emission spectroscopy,* by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.

5-A3. *Methods for analysis of organic substances in water,* by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples,* edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.

5-A5. *Methods for determination of radioactive substances in water and fluvial sediments,* by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

5-C1. *Laboratory theory and methods for sediment analysis,* by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments,* by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water,* by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

8-A1. *Methods of measuring water levels in deep wells,* by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.

8-B2. *Calibration and maintenance of vertical-axis type current meters,* by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.

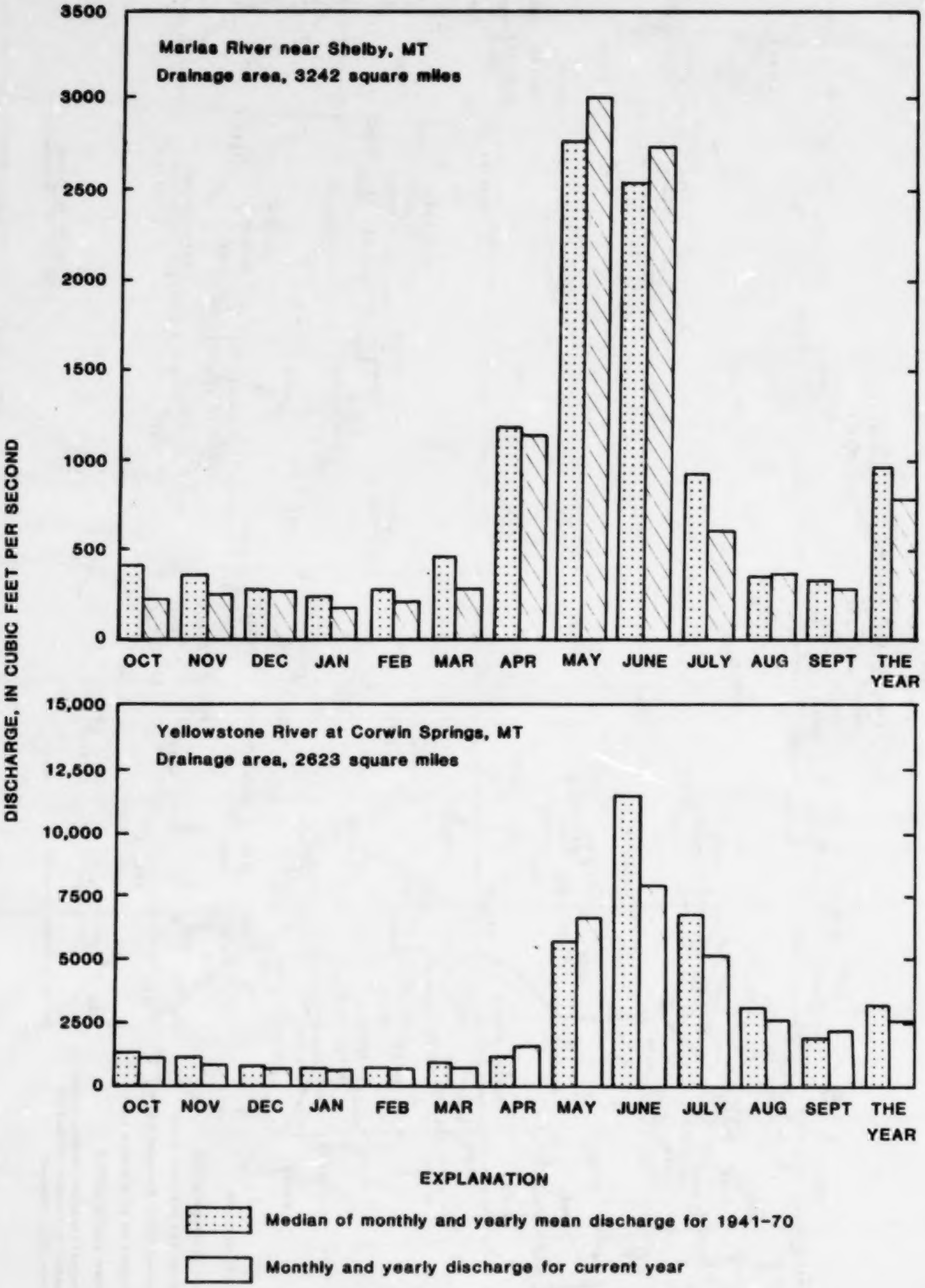
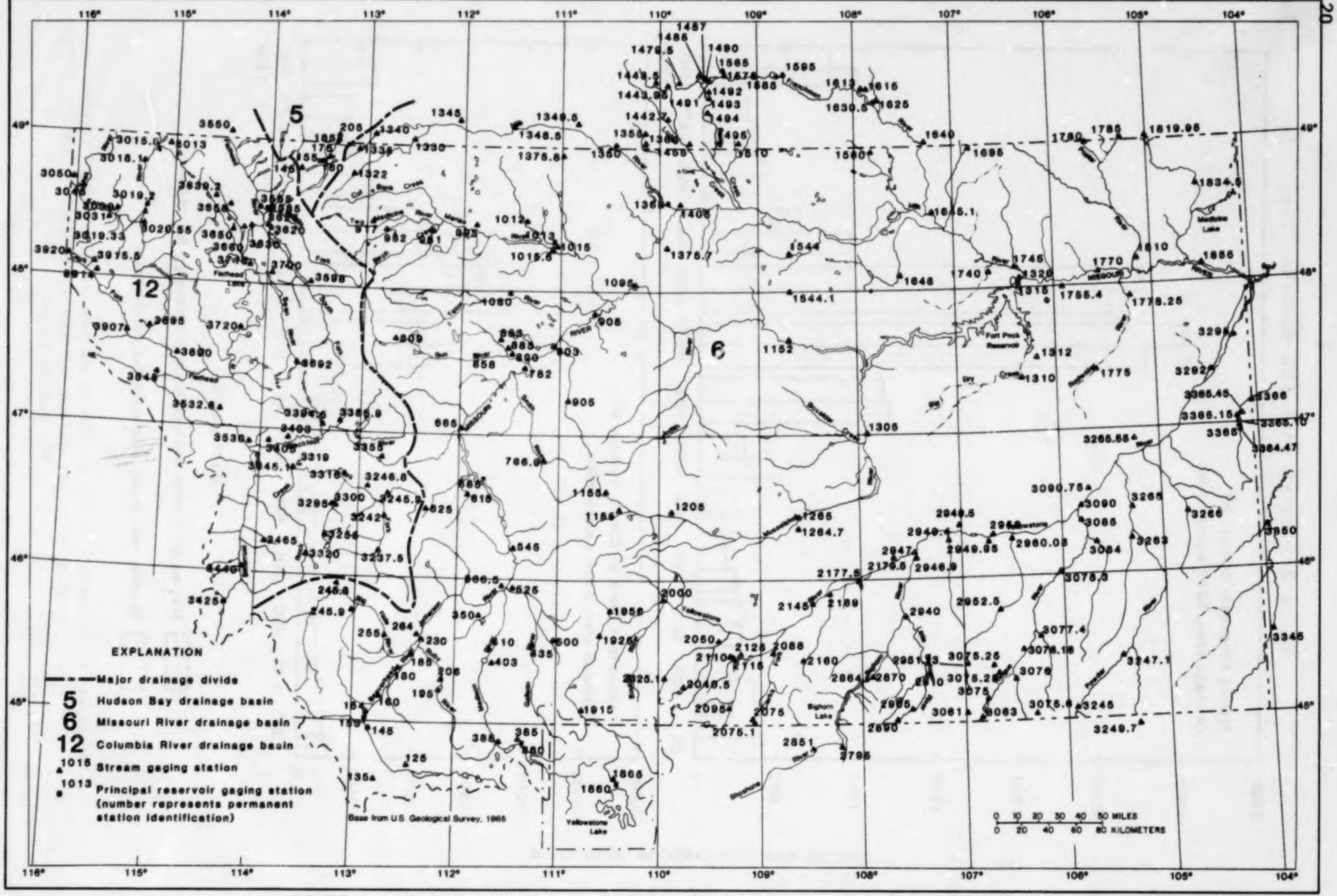


Figure 2.--Comparison of discharge at two long-term representative gaging stations during current year with medium discharge for period 1941-70.


EXPLANATION
Major drainage divide
5 Hudson Bay drainage basin
6 Missouri River drainage basin
12 Columbia River drainage basin
1015 Stream gaging station
1013 Principal reservoir gaging station (number represents permanent station identification)
0 10 20 30 40 50 MILES
0 20 40 60 80 KILOMETERS
Fort Peck Reservoir
Flathead Lake
Bighorn Lake
Yellowstone Lake
Medicine Lake
116°
115°
114°
113°
112°
111°
110°
109°
108°
107°
106°
105°
104°
49°
48°
47°
46°
45°

Base from U.S. Geological Survey, 1965

FIGURE 3.--LOCATION OF SURFACE-WATER GAGING STATIONS, 1980 WATER YEAR

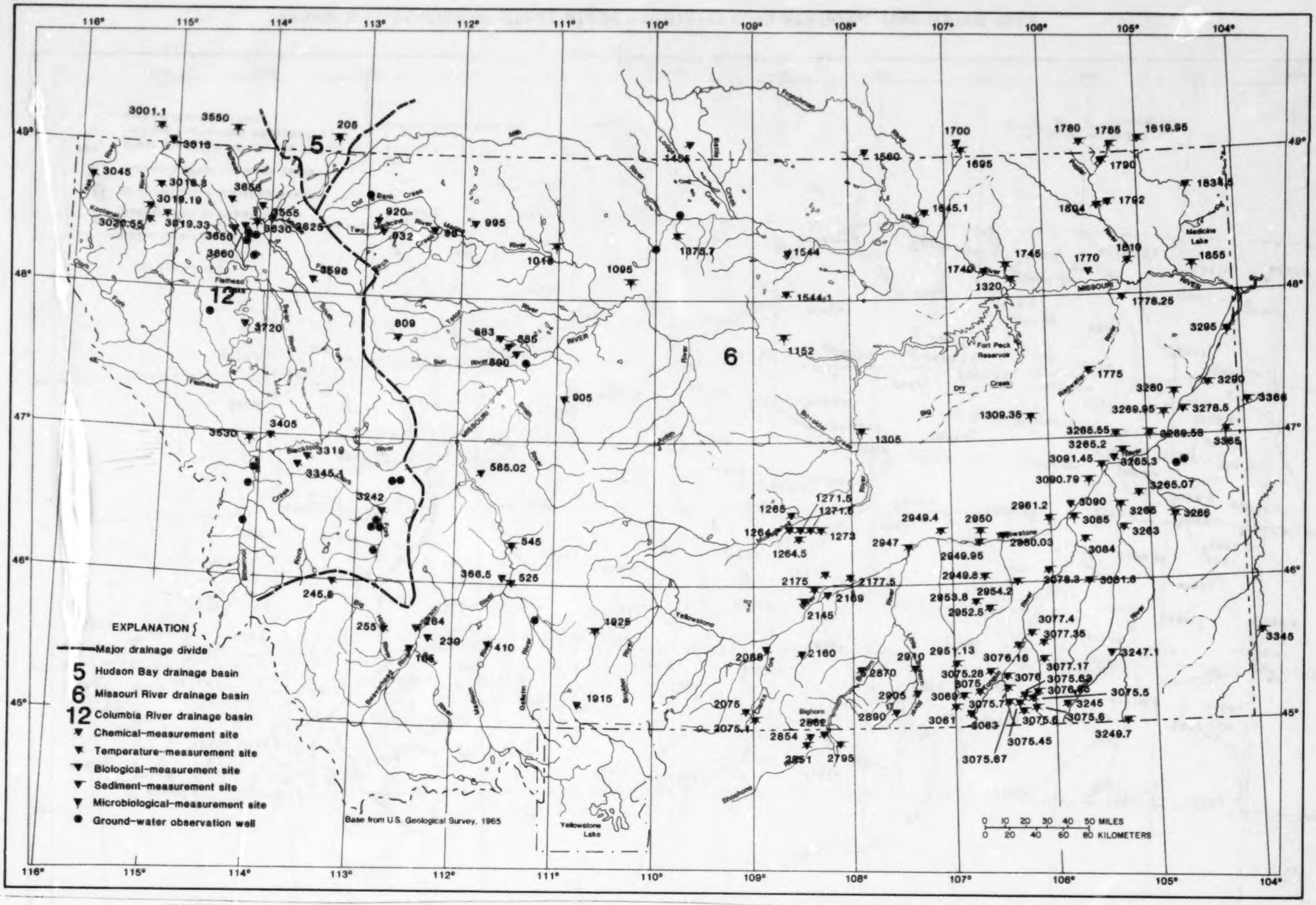
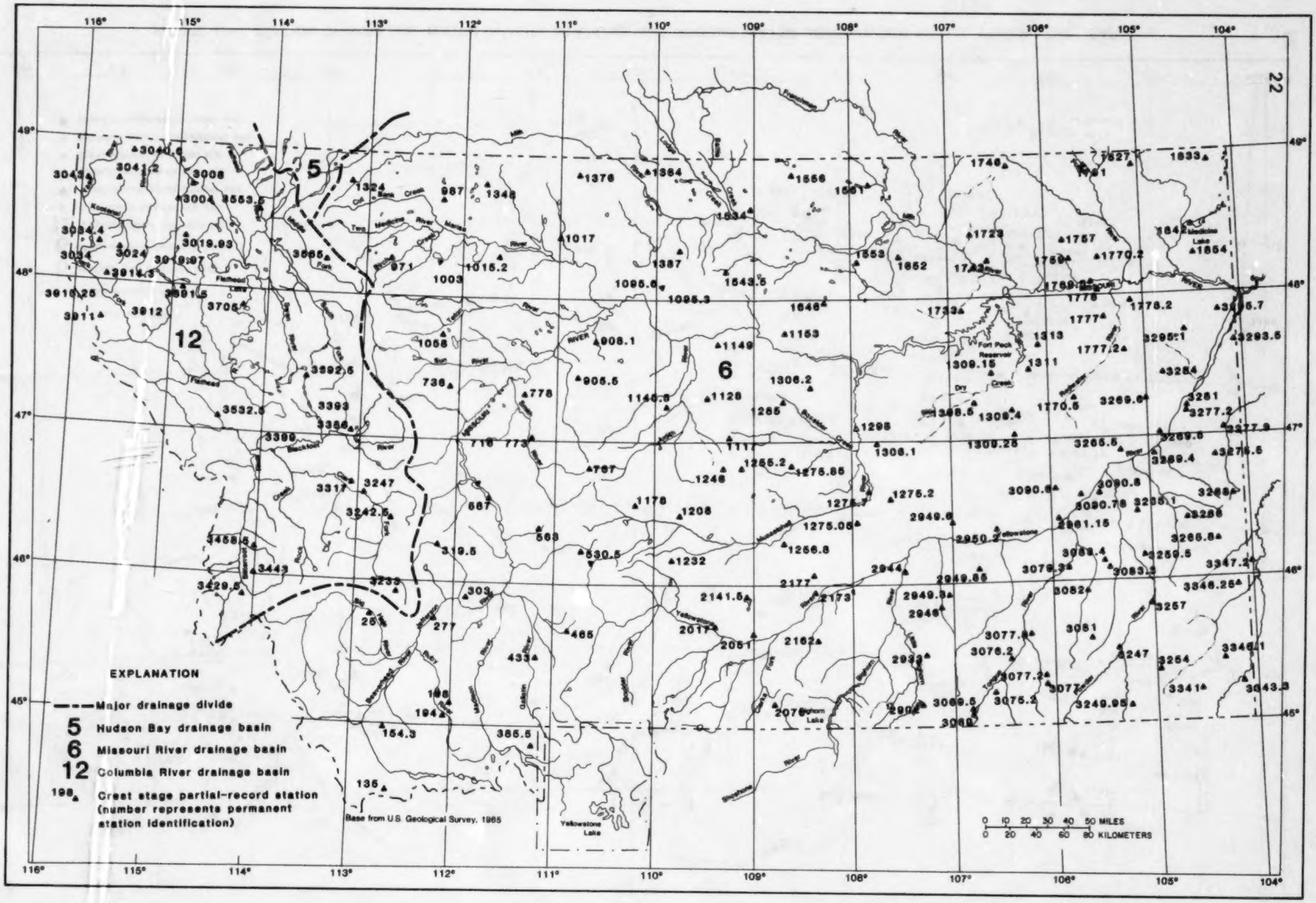

EXPLANATION
Major drainage divide
5 Hudson Bay drainage basin
6 Missouri River drainage basin
12 Columbia River drainage basin
Chemical-measurement site
Temperature-measurement site
Biological-measurement site
Sediment-measurement site
Microbiological-measurement site
Ground-water observation well
5
6
12
116°
115°
114°
113°
112°
111°
110°
109°
108°
107°
106°
105°
104°
49°
48°
47°
46°
45°
0 10 20 30 40 50 MILES
0 20 40 60 80 KILOMETERS
Fort Peck Reservoir
Medicine Lake
Yellowstone Lake
Flathead
Bighorn
MISSOURI RIVER
Yellowstone
3001.1
3550
3018
3045
206
1560
1700
1695
1780
1785
1819.95
1790
1834.5
1804
1792
1855
1770
1810
1745
1740
1320
1778.25
3295
1775
3280
3290
3269.95
3278.5
3386
3265.55
3265.2
3269.58
3385
3091.45
3265.3
3090.79
3265.07
2961.2
3090
3085
3266
3263
3286
2949.4
2950
2949.95
2950.03
3084
2949.8
3078.3
3081.6
2953.8
2954.2
2952.5
3077.4
3077.35
3247.1
3345
2951.13
3076.16
3077.17
3075.28
3076
3075.63
3075.5
3069
3075.7
3245
3061
3063
3075.6
3249.7
3075.45
3075.67
2910
2870
2905
2890
2947
2175
2177.5
2169
2145
2160
2068
2075
2075.1
2854
2862
2851
2795
1265
1271.5
1271.6
1264.4
1273
1264.5
1305
1309.35
1152
1544
1544.1
1545.1
1456
1075.7
1095
1016
995
920
932
985
809
883
886
890
905
585.02
545
525
366.5
245.8
264
255
230
186
410
1925
1915
3019.8
3019.10
3030.55
3019.33
3650
3555
3630
3625
3660
3598
3720
3530
3405
3319
3345.1
3242
Base from U.S. Geological Survey, 1965

FIGURE 4.--LOCATION OF SURFACE-WATER QUALITY STATIONS, AND GROUND-WATER OBSERVATION WELLS, 1980 WATER YEAR


EXPLANATION
Major drainage divide
5 Hudson Bay drainage basin
6 Missouri River drainage basin
12 Columbia River drainage basin
198 Crest stage partial-record station (number represents permanent station identification)
0 10 20 30 40 50 MILES
0 20 40 60 80 KILOMETERS
Fort Peck Reservoir
Yellowstone Lake
Bighorn Lake
5
6
12
116°
115°
114°
113°
112°
111°
110°
109°
108°
107°
106°
105°
104°
49°
48°
47°
46°
45°

Base from U.S. Geological Survey, 1965

FIGURE 5.--LOCATION OF CREST STAGE PARTIAL-RECORD STATIONS, 1980 WATER YEAR

05014500 SWIFTCURRENT CREEK AT MANY GLACIER, MT
(Hydrologic bench-mark station)

LOCATION.--Lat 48°47'57", long 113°39'21", in SE¼ sec.11, T.35 N., R.16 W., (unsurveyed), Glacier County, Hydrologic Unit 10010002, Glacier National Park, on right bank 100 ft (30 m) upstream from outlet of Swiftcurrent Lake at Many Glacier, and 11 mi (18 km) southwest of Babb.

DRAINAGE AREA.--30.9 mi^2 (80.0 km^2).

PERIOD OF RECORD.--June 1912 to current year (records incomplete most years prior to 1959). Published as "at McDermott Lake" 1912-14. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1508: 1918(M), 1943. WDR MT-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,876.78 ft (1,486.443 m) National Geodetic Vertical Datum of 1929. Prior to May 23, 1916, nonrecording gage on left bank of lake opposite present gage and at present datum, and May 23, 1916, to June 15, 1918, nonrecording gage at present site and datum. Several observations of water temperature were made during the water year and are available in files of Helena district office.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--24 years, (1917-19, 1958-80), 144 ft^3/s (4.08 m^3/s), 63.29 in/yr (1,608 mm/yr), 104,300 acre-ft/yr (129 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,700 ft^3/s (190 m^3/s) June 8, 1964, gage height, 10.00 ft (3.048 m) from floodmarks, from rating curve extended above 1,100 ft^3/s (31.2 m^3/s) on basis of computation of peak flow over dam; minimum, no flow Nov. 14-16, 1976 (result of pumping operation).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 680 ft^3/s (19.3 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr 30	1145	707	20.0	3.80	1.158	May 26	1200	805	22.8	4.04	1.231
May 23	0615	*817	23.1	*4.07	1.241						

Minimum discharge, 9.5 ft^3/s (0.27 m^3/s) Feb. 1, 2, gage height, 1.45 ft (0.442 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	36	12	22	11	38	17	612	384	229	103	61
2	27	31	16	21	10	36	17	563	524	217	109	89
3	27	30	16	21	14	33	16	622	463	225	113	172
4	25	29	24	20	18	28	16	618	358	218	116	176
5	22	27	26	20	19	26	16	588	279	194	100	146
6	21	26	32	19	18	24	18	580	246	164	91	125
7	21	23	29	19	17	22	18	521	214	147	86	114
8	23	23	28	19	16	20	18	427	196	150	80	109
9	25	22	35	18	15	19	18	384	236	163	83	101
10	24	21	40	18	15	19	18	349	362	189	84	90
11	22	21	36	18	14	21	18	302	473	194	82	82
12	23	19	33	20	15	22	18	282	481	181	85	80
13	25	18	31	21	15	20	21	284	569	171	84	80
14	25	17	39	25	14	21	31	304	566	157	85	92
15	25	16	28	26	14	20	53	323	540	169	86	111
16	27	18	28	23	13	19	66	347	523	174	86	128
17	30	20	32	24	13	16	83	368	519	160	89	120
18	29	24	50	22	15	15	130	395	457	150	113	132
19	28	19	70	20	17	16	204	453	394	146	153	176
20	27	16	62	18	18	16	335	513	365	137	149	365
21	28	15	54	17	17	17	443	630	345	130	139	489
22	25	14	48	17	16	20	425	755	337	135	128	356
23	26	13	42	16	14	21	378	799	306	144	118	254
24	23	13	37	15	13	22	422	698	260	151	102	198
25	30	13	34	16	12	21	512	573	217	144	95	165
26	43	13	32	15	12	20	565	762	196	131	89	134
27	49	14	29	15	18	19	541	618	228	125	84	119
28	47	13	26	15	31	18	560	448	274	122	79	110
29	46	13	23	14	39	18	639	373	271	119	73	115
30	43	11	24	13	---	19	687	343	253	116	66	102
31	41	---	23	12	---	17	---	337	---	108	60	---
TOTAL	906	588	1039	579	473	663	6303	15171	10836	4960	3010	4591
MEAN	29.2	19.6	33.5	18.7	16.3	21.4	210	489	361	160	97.1	153
MAX	49	36	70	26	39	38	687	799	569	229	153	489
MIN	21	11	12	12	10	15	16	282	196	108	60	61
CFSM	.95	.63	1.08	.61	.53	.69	6.80	15.8	11.7	5.18	3.14	4.95
IN.	1.09	.71	1.25	.70	.57	.80	7.59	18.26	13.04	5.97	3.62	5.53
AC-FT	1800	1170	2060	1150	938	1320	12500	30090	21490	9840	5970	9110

CAL YR 1979 TOTAL 41943.4 MEAN 115 MAX 1020 MIN 8.0 CFSM 3.72 IN 50.49 AC-FT 83190
WTR YR 1980 TOTAL 49119.0 MEAN 134 MAX 799 MIN 10 CFSM 4.34 IN 59.13 AC-FT 97430

05015500 LAKE SHERBURNE AT SHERBURNE, MT

(International gaging station)

LOCATION.--Lat 48°49'42", long 113°31'16", in SE¼SE¼SE¼ sec.35, T.36 N., R.15 W., Glacier County, Hydrologic Unit 10010002, in gatehouse at dam on Swiftcurrent Creek, 4.5 mi (7.2 km) southwest of Babb.

DRAINAGE AREA.--63.7 mi^2 (165.0 km^2).

PERIOD OF RECORD.--May 1915 to September 1923 (fragmentary), May 1924 to September 1925, November 1925 to June 1926, September 1926 to March 1936 (no winter records some years), May 1936 to September 1952 (monthend contents and daily elevations). October 1952 to current year (monthend contents only). Monthend contents for some periods, published in WSP 1308. Published as Sherburne Lake Reservoir at Sherburne 1915, 1917-28, 1931-52, and as Sherburne Lake Reservoir near Babb 1929-30.

REVISED RECORDS.--WSP 1338: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,709.45 ft (1,435.440 m) National Geodetic Vertical Datum of 1929. Prior to May 7, 1931, nonrecording gage at present site, and May 8, 1931, to Sept. 30, 1974, water-stage recorder at present site, all at datum 9.54 ft (2.880 m) lower.

REMARKS.--Reservoir is formed on a natural lake by earthfill dam completed in 1921. Prior to 1919, flashboards on a temporary dam provided limited storage. Storage behind main dam began in 1919. The following capacity figures are from capacity table effective Oct. 1, 1975; see previous reports for superseded figures. Capacity, 66,400 acre-ft (81.9 hm^3) between gage height 26 ft (7.9 m), 6 ft (1.8 m) above lowest outlet gate sill, and 88.00 ft (26.822 m), spillway crest. Streambed above gates prevents withdrawal of storage to sill elevation. Dead storage, 1,590 acre-ft (1.96 hm^3) below gage height, 26.00 ft (7.925 m). Figures given herein represent usable contents. Water is used for irrigation on Milk River project of U.S. Water and Power Resources Service.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 66,780 acre-ft (82.3 hm^3) July 14, 1972 (gage height, 88.34 ft or 26.926 m), by capacity table dated Dec. 1, 1929; by capacity table dated Oct. 1, 1975, maximum contents, 68,030 acre-ft (83.9 hm^3) July 14, 1976 (gage height, 88.02 ft or 26.828 m); no usable contents at times.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 67,840 acre-ft (83.6 hm^3) July 1, gage height, 87.90 ft (26.792 m); minimum, 4,480 acre-ft (5.52 hm^3) Sept. 15, gage height, 31.51 ft (9.604 m).

MONTHEND GAGE HEIGHT AND CONTENTS AT 2400, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Gage height (feet)	Contents (acre-feet)	Change in Contents (acre-feet)
Sept. 30	35.04	6,820	--
Oct. 31	38.70	9,510	+ 2,690
Nov. 30	40.78	11,140	+ 1,630
Dec. 31	45.47	15,110	+ 3,970
CAL YR 1979			+ 4,250
Jan. 31	47.76	17,190	+ 2,080
Feb. 29	49.66	18,960	+ 1,770
Mar. 31	42.45	12,510	- 6,450
Apr. 30	47.93	17,340	+ 4,830
May 31	73.46	46,040	+28,700
June 30	87.88	67,810	+21,770
July 31	74.02	46,820	-20,990
Aug. 31	45.63	15,260	-31,560
Sept. 30	36.93	8,180	- 7,080
WTR YR 1980			+ 1,360

05016000 SWIFTCURRENT CREEK AT SHERBURNE, MT

(International gaging station)

LOCATION.--Lat 48°49'49", long 113°30'59", in NW¼SW¼SW¼ sec.36, T.36 N., R.15 W., Glacier County, Hydrologic Unit 10010002, on left bank 1,200 ft (366 m) downstream from outlet of Lake Sherburne Dam at Sherburne and 4.2 mi (6.8 km) southwest of Babb.

DRAINAGE AREA.--64.3 mi^2 (166.5 km^2).

PERIOD OF RECORD.--July 1912 to November 1915 (no winter records), March 1916 to October 1923, May 1924 to current year (no winter records). Monthly discharge only for some periods, published in WSP 1308, 1728. Published as "at Sherburne Lake" 1912-14.

REVISED RECORDS.--WSP 1388: Drainage area. WSP 1508: 1935.

GAGE.--Water-stage recorder. Datum of gage is 4,730.26 ft (1,441.783 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 10, 1920, nonrecording gages at two sites within 1,000 ft (305 m) of present site at different datums. Aug. 10, 1920, to May 17, 1921, nonrecording gage at present site and May 18, 1921, to Sept. 30, 1975, water-stage recorder at present site, all at datum 9.45 ft (2.880 m) lower. Several observations of water temperature were made during the year and are available in files of Helena district office.

REMARKS.--Records good. Flow regulated by Lake Sherburne (see preceding page). No diversions.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

AVERAGE DISCHARGE.--7 years (1916-23), 199 ft^3/s (5.636 m^3/s), 144,200 acre-ft/yr (178 hm^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,420 ft^3/s (68.5 m^3/s) June 25, 1969, gage height, 7.63 ft (2.326 m); maximum gage height, 7.75 ft (2.362 m) June 21, 1975, no flow at times when gates in dam were closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 701 ft^3/s (19.9 m^3/s) Aug. 15, gage height, 5.48 ft (1.670 m); minimum daily, 0.02 ft^3/s (0.0006 m^3/s) Oct. 28, 29, Nov. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.03				.29	429	.68	40	304	671	606
2	.04	.02				.29	422	.47	40	329	665	620
3	.05	---				.29	412	.37	41	376	660	645
4	.04	---				.29	439	.29	41	417	655	639
5	.04	---				.29	462	.21	41	432	650	636
6	.04	---				.29	460	.13	41	434	671	638
7	.03	---				1.4	440	.09	41	489	681	635
8	.04	---				34	390	340	41	556	674	615
9	.04	---				34	212	560	139	599	668	579
10	.04	---				31	122	555	198	613	659	515
11	.04	---				7.8	78	553	199	612	675	321
12	.04	---				.29	63	551	200	608	682	207
13	.04	---				.29	65	548	140	607	674	158
14	.04	---				.29	71	546	79	603	664	148
15	.04	---				.29	87	374	79	602	680	159
16	.04	---				.29	97	269	80	592	687	194
17	.04	---				11	117	270	80	597	678	169
18	.04	---				74	153	271	83	596	669	174
19	.04	---				114	220	192	86	595	660	205
20	.04	---				141	317	137	86	591	652	276
21	.04	---				168	415	91	86	614	646	425
22	.04	---				220	444	69	86	658	637	483
23	.04	---				239	343	71	86	670	627	189
24	.04	---				269	174	50	86	667	618	42
25	.04	---				317	65	37	86	662	633	43
26	.03	---				332	25	46	86	658	654	43
27	.03	---				329	27	40	95	653	656	44
28	.02	---				385	29	39	202	650	642	44
29	.02	---				426	30	39	307	645	627	45
30	.03	---				419	12	39	305	641	613	46
31	.03	---				429	---	40	---	660	612	---
TOTAL	1.16	---				3984.39	6620	5729.24	3200	17730	20340	9543
MEAN	.037	---				129	221	185	107	572	656	318
MAX	.05	---				429	462	560	307	670	687	645
MIN	.02	---				.29	12	.09	40	304	612	42
AC-FT	2.3	---				7900	13130	11360	6350	35170	40340	18930

05017500 ST. MARY RIVER NEAR BABB, MT

LOCATION.--Lat 48°50'00", long 113°25'08", in NW¼NW¼SE¼ sec.34, T.36 N., R.14 W., Glacier County, Hydrologic Unit 10010002, on right bank 0.7 mi (1.1 km) upstream from outlet of Lower St. Mary Lake and 2.0 mi (3.2 km) southeast of Babb.

DRAINAGE AREA.--278 mi^2 (720 km^2).

PERIOD OF RECORD.--July 1901 to October 1902, May 1910 to September 1925, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1308. Published as "at Main" 1901-2, and as "below Swiftcurrent Creek, at Babb" 1910-15. Records for April 1902 to September 1915, May 1929 to September 1950 at sites about 1.5 mi (2.4 km) downstream not equivalent because flow of Swiftcurrent Creek not included 1905-15 and because diversion by St. Mary Canal not included 1929-50.

REVISED RECORDS.--WSP 1308: 1913-14, 1920, 1922-24. WSP 1508: 1902.

GAGE.--Water-stage recorder. Datum of gage is 4,468.13 ft (1,361.886 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1915, water-stage recorder or nonrecording gages at several sites about 3.8 mi (6.1 km) downstream at different datums. Oct. 1, 1915, to Sept. 30, 1925, water-stage recorder or nonrecording gages at several sites within 1.5 mi (2.4 km) downstream at different datums. Several observations of water temperature were made during the year and are available in files of Helena district office.

REMARKS.--Records good. Entire flow of Swiftcurrent Creek below Lake Sherburne is diverted into Lower St. Mary Lake above station. Flow of Swiftcurrent Creek regulated by Lake Sherburne (station number 05015500) since 1919. October 1950 to September 1976, monthly discharge and runoff figures adjusted for change in contents (adjusted for evaporation since October 1961) in Lake Sherburne.

AVERAGE DISCHARGE.--46 years (1901-2, 1910-25, 1950-80), 787 ft^3/s (22.29 m^3/s), 570,200 acre-ft/yr (703 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,500 ft^3/s (467 m^3/s) June 9, 1964, gage height, 12.96 ft (3.950 m), from high-water mark in well, from rating curve extended above 6,100 ft^3/s (173 m^3/s) on basis of slope-area measurement of peak flow; minimum, 26 ft^3/s (0.74 m^3/s) Jan. 5, 1963, Jan. 8, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,320 ft^3/s (94.0 m^3/s) May 26, gage height, 5.14 ft (1.567 m); minimum, 45 ft^3/s (1.27 m^3/s) Nov. 30, gage height, 0.59 ft (0.180 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	79	50	78	70	66	486	1990	1970	1490	1130	876
2	120	81	53	78	69	67	504	2060	1920	1460	1120	864
3	116	78	53	76	70	65	491	2100	1960	1450	1120	904
4	110	77	61	75	68	60	477	2130	1880	1450	1120	954
5	106	75	64	70	68	60	485	2120	1720	1440	1100	981
6	102	74	68	65	67	60	496	2110	1570	1400	1070	989
7	96	75	68	70	66	65	494	2070	1430	1360	1060	990
8	93	74	68	65	65	71	482	2060	1290	1360	1050	998
9	91	72	74	65	64	72	433	2210	1210	1380	1050	975
10	87	75	75	65	63	78	357	2240	1290	1410	1030	933
11	84	74	75	65	61	83	299	2160	1450	1440	1010	844
12	83	73	70	70	62	85	246	2050	1640	1420	1010	731
13	81	72	70	80	60	85	212	1950	1950	1410	1010	645
14	77	70	75	81	55	85	202	1860	2090	1380	1000	612
15	75	67	65	85	55	84	201	1770	2160	1350	991	606
16	75	65	65	83	55	83	202	1610	2190	1330	989	613
17	76	65	75	82	60	78	214	1550	2220	1330	985	608
18	75	64	95	80	61	87	237	1550	2210	1310	1010	605
19	74	61	101	81	62	100	283	1580	2150	1290	1100	630
20	75	58	99	79	63	121	367	1610	2070	1280	1080	705
21	75	56	95	77	63	144	515	1720	1980	1250	1080	878
22	75	55	93	77	63	174	720	1940	1890	1240	1070	1100
23	77	55	91	75	61	212	899	2340	1800	1260	1060	1160
24	76	54	89	78	61	242	975	2700	1700	1260	1030	989
25	76	53	88	70	61	277	1040	2790	1560	1260	1010	870
26	80	52	90	65	59	316	1130	3190	1450	1250	1000	782
27	78	52	88	65	60	343	1260	3180	1400	1220	999	712
28	80	51	85	65	64	366	1410	2860	1390	1210	981	655
29	79	50	83	65	66	410	1580	2530	1470	1170	956	628
30	79	48	81	65	---	460	1840	2280	1500	1160	924	586
31	79	---	78	65	---	473	---	2140	---	1140	894	---
TOTAL	2673	1955	2385	2260	1822	4972	18537	66450	52510	41160	32039	24423
MEAN	86.2	65.2	76.9	72.9	62.8	160	618	2144	1750	1328	1034	814
MAX	123	81	101	85	70	473	1840	3190	2220	1490	1130	1160
MIN	74	48	50	65	55	60	201	1550	1210	1140	894	586
AC-FT	5300	3880	4730	4480	3610	9860	36770	131800	104200	81640	63550	48440

CAL YR 1979 TOTAL 228728 MEAN 627 MAX 4660 MIN 48 AC-FT 453700
WTR YR 1980 TOTAL 251186 MEAN 686 MAX 3190 MIN 48 AC-FT 498200

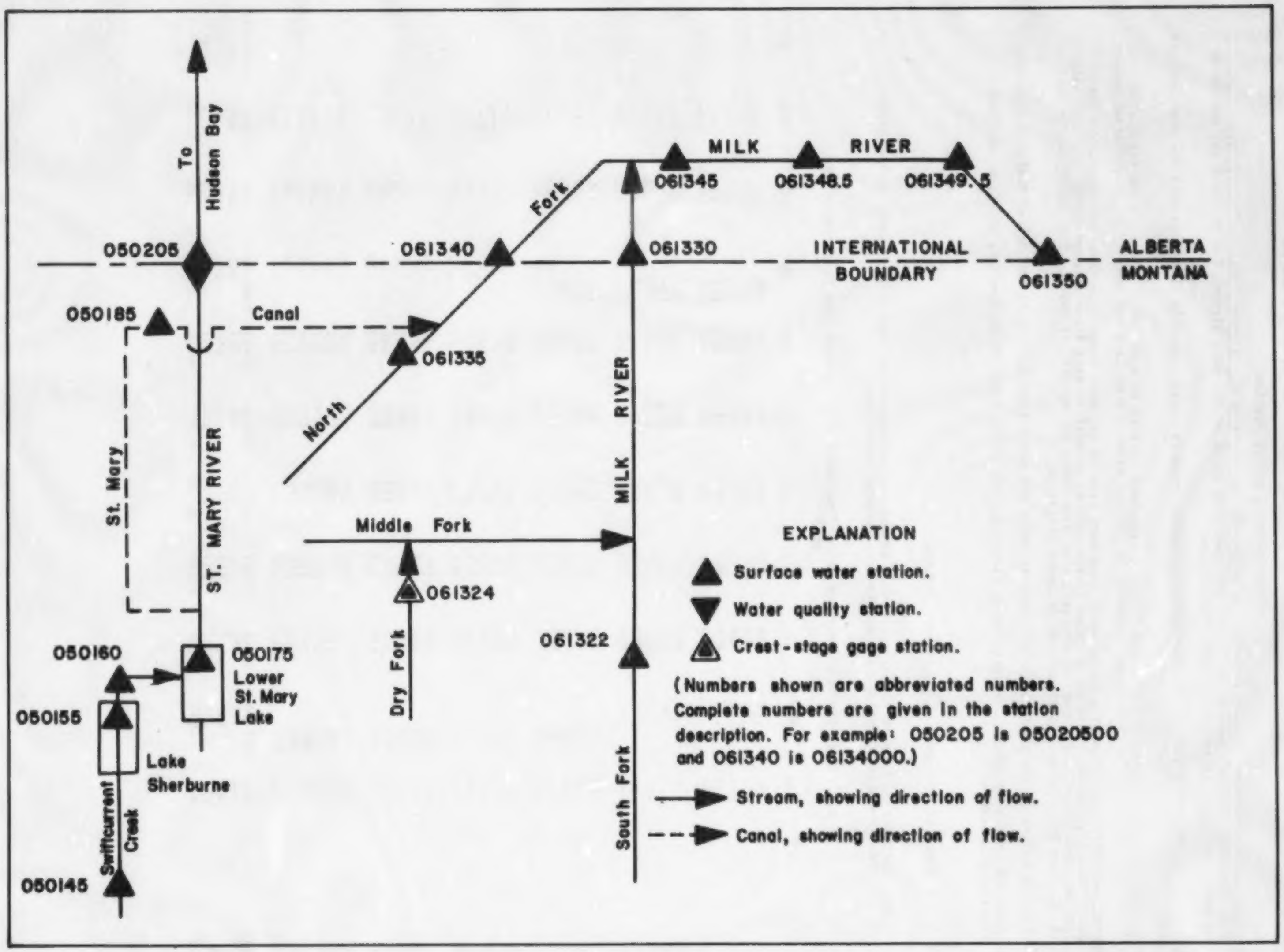

To Hudson Bay
MILK RIVER
Fork
North
061345
061348.5
061349.5
050205
061340
061330
INTERNATIONAL BOUNDARY
ALBERTA
MONTANA
061350
050185
Canal
061335
St. Mary
ST. MARY RIVER
MILK RIVER
Middle Fork
061324
Dry Fork
061322
South Fork
050160
050175
Lower St. Mary Lake
050155
Lake Sherburne
Swiftcurrent Creek
050145
EXPLANATION
Surface water station.
Water quality station.
Crest-stage gage station.
(Numbers shown are abbreviated numbers. Complete numbers are given in the station description. For example: 050205 is 05020500 and 061340 is 06134000.)
Stream, showing direction of flow.
Canal, showing direction of flow.

Figure 6. Schematic diagram showing diversion from St. Mary River in Part 5 to Milk River in Part 6.

05018500 ST. MARY CANAL AT ST. MARY CROSSING, NEAR BABB, MT

(International gaging station)

LOCATION.--Lat 48°56'50", long 113°22'28", in NE¼SW¼SW¼ sec.19, T.37 N., R.13 W., Glacier County, Hydrologic Unit 10010002, on left bank 50 ft (15 m) upstream from inlet of St. Mary siphon, 6.6 mi (10.6 km) northeast of Babb, and 9 mi (15 km) downstream from intake.

PERIOD OF RECORD.--July 1918 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1308, 1728.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,450 ft (1,360 m), from topographic map. Prior to June 14, 1951, water-stage recorder at several sites 0.8 mi (1.3 km) downstream at different datums.

REMARKS.--Records good. Canal diverts water from left bank of St. Mary River near Babb and discharges into North Fork Milk River. This water flows in the natural channel of Milk River through Canada and then back into Montana, where it is used for irrigation in Milk River Valley east of Havre. Some water may be returned to St. Mary River at Kennedy Creek and St. Mary crossings.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 767 ft^3/s (21.7 m^3/s) June 19, 28, 1936; no flow at times each season.

THE SEASON MARCH TO OCTOBER AC-FT 199,500

Note.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		---	.00	448	702	661	682	669	649	.00	.00	
2		---	.00	465	687	662	692	669	647	.00	.00	
3		---	.00	464	631	663	690	669	650	.00	.00	
4		---	.00	456	587	657	689	669	653	.00	---	
5		---	.00	460	585	652	688	667	656	.00	---	
6		---	.00	461	585	646	686	666	656	.00	---	
7		---	.00	432	595	639	683	665	656	.00	---	
8		---	.00	431	546	633	682	665	623	.00	---	
9		---	.00	392	325	628	681	662	528	.00	---	
10		---	.00	299	220	634	682	662	522	.00	---	
11		---	15	279	217	658	683	659	494	.00	---	
12		---	6.7	127	214	682	681	659	271	.00	---	
13		---	30	116	214	681	681	659	28	.00	---	
14		---	48	128	213	657	680	658	10	.00	---	
15		---	68	161	211	656	682	659	3.8	.00	---	
16		---	65	167	290	662	683	658	.00	.00	---	
17		---	61	193	505	674	684	657	.00	.00	---	
18		---	70	209	569	673	682	662	.00	.00	---	
19		---	74	242	572	671	680	664	.00	.00	---	
20		---	92	285	581	669	679	660	.00	.00	---	
21		---	129	408	616	666	678	662	.00	.00	---	
22		---	164	562	618	664	676	661	.00	.00	---	
23		---	168	630	627	673	676	661	.00	.00	---	
24		---	191	662	646	681	677	660	.00	.00	---	
25		---	240	667	673	677	678	658	.00	.00	---	
26		---	264	673	620	676	676	658	.00	.00	---	
27		.00	316	676	488	676	677	656	.00	.00	---	
28		.00	332	682	655	672	674	657	.00	.00	---	
29		.00	367	686	673	676	670	656	.00	.00	---	
30		---	377	697	668	676	672	653	.00	.00	---	
31		---	402	---	668	---	671	651	---	.00	---	
TOTAL		---	3479.70	12558	16001	19895	21095	20491	7046.80	.00	---	
MEAN		---	112	419	516	663	680	661	235	.000	---	
MAX		---	402	697	702	682	692	669	656	.00	---	
MIN		---	.00	116	211	628	670	651	.00	.00	---	
AC-FT		---	6900	24910	31740	39460	41840	40640	13980	.00	---	

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'12", long 113°18'48", in SW¼ sec.5, T.1, R.25 W., fourth meridian, in Alberta, Hydrologic Unit 10010002, on right bank 0.4 mi (0.6 km) north of international boundary, 2.5 mi (4.0 km) downstream from Boundary Creek, 7.5 mi (12.1 km) southwest of Kimball, Alberta, and 11.5 mi (18.5 km) northeast of Babb, Mt.

DRAINAGE AREA.--469 mi^2 (1,215 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1902 to current year. Monthly discharge only for some periods, published in WSP 1308. Published as "near Cardston, Alberta" and "at Cook's Ranch, Alberta" 1902-12 and as "near Kimball, Alberta" 1913-55.

REVISED RECORDS.--WSP 1308: 1902, 1908-12. WSP 1508: 1902, 1908-9.

GAGE.--Water-stage recorder. Altitude of gage is 4,120 ft (1,260 m), from topographic map. Prior to Jan 1, 1913, nonrecording gages at two sites within 0.3 mi (0.5 km) of present site at different datums. Jan. 1, 1913, to Oct. 25, 1955, water-stage recorder at several sites about 8 mi (13 km) downstream from present site at various datums. Oct. 26, 1955, to Mar. 23, 1965, water-stage recorder at site 100 ft (30 m) upstream at datum 2 ft (0.6 m) higher.

REMARKS.--Water-discharge records good except those for winter months, which are poor. Since 1917, St. Mary Canal has diverted water from the river near Babb, Mt. to North Fork Milk River. Some regulation by Lake Sherburne on Swiftcurrent Creek.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

AVERAGE DISCHARGE.--14 years (1902-16), prior to operation of St. Mary Canal, 1,003 ft^3/s (28.40 m^3/s), 726,700 acre-ft/yr (896 hm^3/yr); 64 years (1916-80), 701 ft^3/s (19.85 m^3/s), 507,900 acre-ft/yr (626 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,000 ft^3/s (1,133 m^3/s) June 5, 1908, gage height, 12.75 ft (3.886 m), from floodmarks, site and datum then in use, from rating curve extended above 6,000 ft^3/s (170 m^3/s); minimum daily, 16 ft^3/s (0.45 m^3/s) Nov. 29, 1936.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,950 ft^3/s (140 m^3/s) May 26, gage height, 7.43 ft (2.265 m); minimum daily, 30 ft^3/s (0.85 m^3/s) Mar. 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	180	120	56	93	79	77	55	1550	1870	971	498	296
2	175	122	63	93	79	79	55	1620	1840	905	488	274
3	172	122	71	95	82	74	50	1740	1860	883	503	300
4	167	120	79	82	82	69	50	1770	1660	869	503	343
5	159	118	88	77	77	69	50	1750	1470	848	483	359
6	153	113	97	74	74	69	55	1730	1290	813	459	372
7	146	113	97	77	77	74	90	1660	1140	773	459	368
8	143	113	107	74	76	77	101	1720	1060	760	444	435
9	143	113	118	74	72	81	95	2010	987	760	449	514
10	138	118	118	74	72	84	105	2070	1070	799	439	478
11	131	116	97	74	72	82	65	2010	1250	848	421	439
12	129	113	84	79	72	101	240	1880	1390	813	435	578
13	127	111	84	88	65	79	237	1770	1950	799	435	734
14	127	113	90	97	65	56	274	1700	2070	773	435	715
15	120	109	77	103	65	40	274	1640	2050	734	416	740
16	118	109	77	99	65	35	247	1410	2010	708	412	734
17	118	105	86	95	71	30	233	1160	1940	690	412	721
18	118	105	113	93	68	30	237	1110	1870	677	439	715
19	118	95	146	91	69	39	250	1160	1760	665	514	740
20	118	74	156	90	71	46	274	1170	1660	653	498	799
21	118	74	151	91	71	50	260	1300	1550	624	498	956
22	118	84	146	90	71	39	260	1540	1450	601	493	1140
23	118	95	138	88	69	43	398	1980	1330	601	478	1230
24	118	99	129	91	68	65	519	2360	1200	618	444	1110
25	118	91	120	79	69	50	624	2590	1070	612	421	987
26	124	88	120	76	66	63	702	4410	1030	601	407	883
27	124	76	124	76	72	56	820	3730	971	578	403	806
28	131	60	120	76	74	63	979	2810	919	556	381	747
29	124	56	111	77	76	63	1160	2340	949	535	368	715
30	122	56	103	76	---	88	1460	2080	987	519	339	683
31	122	---	97	76	---	107	---	2150	---	498	311	---
TOTAL	4137	3001	3263	2618	2089	1978	10219	59920	43653	22084	13685	19911
MEAN	133	100	105	84.5	72.0	63.8	341	1933	1455	712	441	664
MAX	180	122	156	103	82	107	1460	4410	2070	971	514	1230
MIN	118	56	56	74	65	30	50	1110	919	498	311	274
AC-FT	8210	5950	6470	5190	4140	3920	20270	118900	86590	43800	27140	39490

CAL YR 1979 TOTAL 207270 MEAN 568 MAX 4960 MIN 56 AC-FT 411100
WTR YR 1980 TOTAL 186558 MEAN 510 MAX 4410 MIN 30 AC-FT 370000

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: February 1978 to current year.

REMARKS.--Once-daily water temperatures are available in the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 298 micromhos Feb. 14, 1979; minimum daily, 141 micromhos June 14, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 291 micromhos Apr. 18, 19; minimum daily, 149 micromhos Sept. 24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
OCT 29...	1230	124	1	228	8.2	4.0	3.0	.50	11.6	100	< 1
NOV 29...	0900	56	0	251	8.2	-12.0	.0	.50	12.5	98	K2
DEC 20...	0900	156	1	238	8.1	.0	.0	1.2	12.1	97	K3
JAN 15...	1400	103	1	205	7.9	1.0	.0	--	11.9	95	K2
FEB 12...	1430	72	83	221	8.2	-2.0	.0	.50	11.9	96	K7
MAR 14...	1000	56	1	213	8.3	6.5	.0	1.0	12.0	97	< 1
APR 17...	1430	233	1	248	8.5	21.0	5.5	23	11.2	102	21
MAY 23...	0900	1900	60	157	8.2	11.0	10.0	85	9.4	97	68
JUN 26...	0830	1030	61	179	8.2	12.0	11.0	1.2	9.5	99	K7
JUL 25...	0900	612	1	157	8.2	17.0	14.5	1.6	8.9	99	29
AUG 20...	0900	508	1	180	8.4	12.0	12.0	2.8	9.1	98	--
SEP 26...	0900	890	1	160	8.1	4.0	8.5	2.0	10.0	98	K4

DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)
OCT 29...	K3	110	10	28	9.8	2.7	.1	.5	100	12	.3
NOV 29...	K4	130	4	34	12	3.4	.1	.5	130	12	.4
DEC 20...	35	110	0	27	9.7	3.2	.1	.9	110	7.6	.6
JAN 15...	K1	100	12	26	8.9	2.4	.1	.4	90	21	.2
FEB 12...	K5	110	7	27	9.7	2.2	.1	.4	100	16	.2
MAR 14...	K4	110	4	29	10	2.6	.1	.5	110	1.7	.1
APR 17...	60	120	28	30	12	7.0	.3	--	96	28	1.4
MAY 23...	97	71	0	18	6.3	1.5	.1	.4	71	2.9	.1
JUN 26...	K8	92	5	24	7.8	1.6	.1	.3	78	7.0	1.5
JUL 25...	K10	94	4	25	7.6	1.4	.1	.4	80	5.1	1.2
AUG 20...	--	91	1	23	8.2	2.2	.1	.4	94	7.5	.3
SEP 26...	K8	74	0	19	6.4	1.0	.1	.3	80	4.4	.4

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)
OCT										
29...	.1	3.0	101	117	.14	33.8	.05	.05	.06	.03
NOV										
29...	.1	3.7	148	145	.20	22.4	.08	.09	.01	.03
DEC										
20...	.1	3.5	118	119	.16	49.7	.08	.08	.02	.02
JAN										
15...	.1	3.2	106	117	.14	29.5	.08	.08	.00	.01
FEB										
12...	.0	3.0	119	119	.16	23.1	.08	.09	.04	.01
MAR										
14...	.1	3.0	121	113	.16	18.3	.08	.07	.00	.00
APR										
17...	.1	5.2	163	--	.22	103	.06	.08	.04	.02
MAY										
23...	.1	2.5	78	75	.11	400	.09	.10	.10	.07
JUN										
26...	.1	2.7	98	97	.13	273	.10	.00	.06	.00
JUL										
25...	.1	2.5	90	98	.12	149	.06	.04	.00	.00
AUG										
20...	.1	2.6	105	99	.14	144	.02	.01	.01	.00
SEP										
26...	.1	2.0	88	79	.12	211	.00	.00	.00	.00

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N) (00607)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)
OCT									
29...	.20	.29	.26	.32	.00	.00	2.5	--	--
NOV									
29...	.22	.24	.23	.27	.00	.00	--	9.6	.0
DEC									
20...	.27	.26	.29	.28	.02	.00	4.1	--	--
JAN									
15...	.69	.70	.69	.71	.01	.01	1.9	--	--
FEB									
12...	.17	.14	.21	.15	.00	.00	--	3.2	.2
MAR									
14...	.37	.31	.37	.31	.01	.00	3.7	--	--
APR									
17...	.87	.60	.91	.62	.08	.02	11	--	--
MAY									
23...	3.0	1.9	3.1	2.0	.10	.01	--	2.2	--
JUN									
26...	.29	.26	.35	.26	.00	.00	2.2	--	--
JUL									
25...	.63	.63	.63	.63	.01	.00	4.6	--	--
AUG									
20...	.25	.26	.26	.26	.01	.01	--	3.1	.2
SEP									
26...	.27	.23	.27	.23	.03	.02	1.9	--	--

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
NOV 29...	0900	1	1	300	200	1	< 1	0	0	0
DEC 20...	0900	--	--	--	--	--	--	--	--	--
FEB 12...	1430	0	1	0	100	0	1	0	0	0
MAR 14...	1000	--	--	--	--	--	--	--	--	--
MAY 23...	0900	1	1	100	100	0	5	0	0	0
JUN 26...	0830	--	--	--	--	--	--	--	--	--
AUG 20...	0900	1	1	200	100	0	< 1	50	10	0
SEP 26...	0900	--	--	--	--	--	--	--	--	--

DATE	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
NOV 29...	< 3	0	0	30	< 10	5	1	200	3	.0
DEC 20...	--	--	--	--	--	--	--	--	--	--
FEB 12...	< 3	0	0	60	< 10	7	0	10	1	.1
MAR 14...	--	--	--	--	--	--	--	--	--	--
MAY 23...	5	10	5	3000	10	7	0	70	8	.1
JUN 26...	--	--	--	--	--	--	--	--	--	--
AUG 20...	< 3	11	0	160	< 10	3	3	0	< 1	.0
SEP 26...	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV 29...	.0	4	1	0	0	0	0	0	< 3
DEC 20...	--	--	--	--	--	0	--	--	--
FEB 12...	.0	2	1	0	0	0	0	20	< 3
MAR 14...	--	--	--	--	--	4	--	--	--
MAY 23...	.0	7	0	0	0	0	0	60	6
JUN 26...	--	--	--	--	--	0	--	--	--
AUG 20...	.0	5	3	0	0	1	0	10	< 3
SEP 26...	--	--	--	--	--	0	--	--	--

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	195	202	234	202	217	220	272	179	199	170	171	187
2	196	216	224	206	213	218	277	175	199	170	171	183
3	196	203	213	222	217	230	281	175	199	169	178	182
4	199	201	219	222	215	229	286	170	189	170	178	173
5	200	202	225	221	214	229	287	167	190	170	178	173
6	208	204	220	255	213	225	250	163	192	169	179	169
7	208	200	221	235	216	220	247	163	199	169	179	161
8	208	213	214	235	212	215	259	160	199	170	190	160
9	203	205	216	220	222	215	260	160	197	167	180	168
10	207	204	236	220	219	211	230	162	193	169	180	167
11	209	200	226	220	219	210	245	160	189	166	179	168
12	207	202	221	217	217	214	220	157	190	169	181	153
13	210	213	213	221	227	221	224	160	183	166	182	154
14	210	213	214	220	231	225	261	159	173	167	188	162
15	212	211	234	---	221	253	269	162	170	168	180	161
16	210	212	228	211	220	273	280	157	165	166	185	163
17	211	211	182	209	217	270	290	161	164	165	182	169
18	210	211	205	211	215	271	291	163	170	170	180	162
19	210	212	217	211	218	268	291	161	165	168	181	160
20	211	200	204	218	219	266	290	160	168	168	180	150
21	210	213	208	211	220	235	265	160	170	166	180	150
22	216	227	209	208	223	259	265	161	170	170	179	151
23	211	226	204	212	220	263	230	161	168	163	180	150
24	210	238	206	212	224	239	218	160	172	166	185	149
25	210	238	206	219	217	272	221	175	171	168	180	150
26	205	240	202	223	215	270	191	201	180	165	180	158
27	207	230	200	240	205	270	192	179	178	168	181	157
28	206	244	202	219	218	271	192	172	170	166	190	156
29	207	240	205	220	220	270	201	176	172	171	183	159
30	217	250	210	220	---	212	195	179	171	169	188	158
31	203	---	210	214	---	241	---	199	---	169	190	---
MEAN	207	216	214	219	218	241	249	168	181	168	181	162

WTR YR 1980 MEAN 202 MAX 291 MIN 149

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 29...	1230	3.0	124	3	1.0	72
NOV 29...	0900	.0	56	3	.45	83
DEC 20...	0900	.0	156	3	1.3	65
JAN 15...	1400	.0	103	2	.56	76
FEB 12...	1430	.0	72	8	1.6	91
MAR 14...	1000	.0	56	3	.45	--
APR 17...	1430	5.5	233	55	35	96
MAY 23...	0900	10.0	1900	230	1180	88
JUN 26...	0830	11.0	1030	9	25	85
JUL 25...	0900	14.5	612	4	6.6	82
AUG 20...	0900	12.0	508	6	8.2	88
SEP 26...	0900	8.5	890	10	24	68

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY--Continued

PERIPHYTON ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	LENGTH OF EXPO- SURE (DAYS) (00022)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO- PHYLL RATIO PERI- PHYTON (UNITS) (70950)
OCT							
29...	1230	34	.160	.080	.080	.000	1000
AUG							
20...	0900	26	1.73	1.26	.570	.000	825
SEP							
26...	0900	37	.341	.225	.012	.000	9667

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO JUNE 1980

DATE TIME	NOV 29,79 0900	MAR 14,80 1000	MAY 23,80 0900	JUN 26,80 0830
TOTAL CELLS/ML	340	420	140	78
DIVERSITY: DIVISION	0.2	0.1	0.0	0.0
.CLASS	0.4	0.1	0.0	0.0
..ORDER	1.0	0.1	0.0	0.0
...FAMILY	2.9	2.6	1.4	1.5
....GENUS	3.0	2.6	1.4	1.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....ANKISTRODESMUS	5	1	--	-	--	-	--	-
....CHLORELLA	5	1	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	55#	16	--	-	--	-	13#	17
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	65#	19	60	14	--	-	--	-
....COCCONEIS	5	1	--	-	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	15	4	20	5	--	-	--	-
...DIATOMACEAE								
....DIATOMA	60#	18	140#	33	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	50	15	20	5	77#	55	39#	50
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	30	7	--	-	--	-
...NAVICULACEAE								
....NAVICULA	30	9	81#	19	26#	18	--	-
...NITZSCHIACEAE								
....NITZSCHIA	35	10	65#	15	--	-	26#	33
...TABELLARIACEAE								
....TABELLARIA	--	-	--	-	39#	27	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....DINOBRYON	10	3	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..GYMNODINIALES								
...GYMNODINIACEAE								
....GYMNODINIUM	--	-	5	1	--	-	--	-

05020500 ST. MARY RIVER AT INTERNATIONAL BOUNDARY--Continued

PHYTOPLANKTON ANALYSES, JULY 1980 TO SEPTEMBER 1980

DATE	JUL 25,80		AUG 20,80		SEP 26,80	
TIME	0900		0900		0900	
TOTAL CELLS/ML	120		310		180	
DIVERSITY: DIVISION	0.0		1.4		0.9	
.CLASS	0.0		1.4		1.2	
..ORDER	0.5		1.7		2.0	
...FAMILY	1.7		2.5		2.7	
....GENUS	1.7		2.5		2.8	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	13	4	--	-
....OOCYSTIS	--	-	--	-	13	7
....SELENASTRUM	--	-	--	-	13	7
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	26	8	--	-
..TETRASPORALES						
...COCCOMYXACEAE						
....ELAKATOTHRIX	--	-	--	-	26	14
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	13	4	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	13	11	13	4	26	14
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	26#	22	--	-	--	-
...CYMBELLACEAE						
....CYMBELLA	--	-	--	-	13	7
...FRAGILARIACEAE						
....FRAGILARIA	13	11	100#	33	--	-
...NAVICULACEAE						
....NAVICULA	--	-	13	4	26	14
...NITZSCHIACEAE						
....NITZSCHIA	64#	56	51#	17	52#	29
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...OCHROMONADACEAE						
....DINOBRYON	--	-	--	-	13	7
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	77#	25	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06012500 RED ROCK RIVER BELOW LIMA RESERVOIR, NEAR MONIDA, MT

LOCATION.--Lat 44°39'22", long 112°22'14", in NE¼SE¼SE¼ sec. 31, T.13 S., R.6 W., Beaverhead County, Hydrologic Unit 10020001, on right bank just downstream from Lima Reservoir, 7 mi (11 km) northwest of Monida, and at mile 2,542.1 (4,090.2 km).

DRAINAGE AREA.--570 mi^2 (1,476 km^2).

PERIOD OF RECORD.--January 1911 to December 1918, April 1919, May 1925 to October 1933, April 1934 to September 1935, May 1936 to October 1938, May 1939 to September 1969, June 1974 to current year (no winter records). Monthly discharge only for some periods, published in WSP 1309. Prior to October 1950, published as "below Red Rock Reservoir."

REVISED RECORDS.--WSP 1309: 1935. WSP 1389: 1912, 1934. WSP 1559: Drainage area.

GAGE.--Water-stage recorder and sharp-crested weir. Altitude of gage is 6,530 ft (1,990 m), estimated from spillway elevation based on Montana Department of Natural Resources and Conservation datum. Prior to Oct. 1, 1978, at datum 1.00 ft (0.305 m) lower. See WSP 1709 for history of nonrecording gage changes prior to May 8, 1939.

REMARKS.--Seasonal records fair. Flow regulated by Lima Reservoir (station number 06012000). No storage during 1934. Diversions for irrigation of about 10,000 acres (40.5 km^2) above reservoir. Several observations of water temperature made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--48 years (1911-18, 1925-33, 1934-35, 1936-38, 1939-69), 143 ft^3/s (4.050 m^3/s), 103,600 acre-ft/yr (128 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 2,500 ft^3/s (70.8 m^3/s) May 15, 1933 (gage height, 6.40 ft (1.951 m) estimated by dam tender), released to prevent failure of dam; no flow at times.

EXTREMES FOR CURRENT SEASON.--Maximum discharge observed, 559 ft^3/s (15.8 m^3/s) May 21-24, gage height, 3.38 ft (1.030 m); no flow Oct. 1-5, 22-31; Apr. 1 to May 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00						.00	.00	334	510	301	334
2	.00						.00	14	334	510	298	334
3	.00						.00	36	282	510	298	334
4	.00						.00	36	282	510	298	330
5	.00						.00	36	282	510	298	327
6	3.0						.00	38	250	510	298	327
7	12						.00	38	250	510	292	327
8	12						.00	71	250	410	292	279
9	12						.00	107	250	410	292	245
10	6.0						.00	201	301	410	292	245
11	6.0						.00	135	301	410	292	245
12	6.0						.00	135	301	410	292	245
13	6.0						.00	135	301	357	292	245
14	6.0						.00	196	301	301	292	243
15	6.0						.00	288	301	301	292	243
16	6.0						.00	288	301	301	317	243
17	6.0						.00	250	301	301	337	243
18	6.0						.00	250	301	301	337	243
19	6.0						.00	266	410	250	337	243
20	6.0						.00	327	463	250	337	243
21	4.0						.00	543	510	250	337	243
22	.00						.00	559	510	250	337	243
23	.00						.00	559	510	250	334	243
24	.00						.00	559	510	250	334	243
25	.00						.00	425	510	301	334	243
26	.00						.00	334	510	301	334	243
27	.00						.00	334	510	301	334	243
28	.00						.00	334	510	301	334	243
29	.00						.00	334	510	301	334	243
30	.00						.00	340	510	301	334	98
31	.00						---	334	---	301	334	---
TOTAL	109.00						.00	7502.00	11196	11089	9764	7803
MEAN	3.52						.000	242	373	358	315	260
MAX	12						.00	559	510	510	337	334
MIN	.00						.00	.00	250	250	292	98
AC-FT	216						.00	14880	22210	22000	19370	15480

06014500 RED ROCK RIVER AT RED ROCK, MT

LOCATION.--Lat 44°55'02", long 112°49'48", in SW¼SE¼ sec.33, T.10 S., R.10 W., Beaverhead County, Hydrologic Unit 10020001, on right bank 0.6 mi (1.0 km) downstream from bridge on county road, 1.8 mi (2.9 km) upstream from Clark Canyon Reservoir flow line, 1.3 mi (2.1 km) northwest of Red Rock, and at mile 2,491.4 (4,008.7 km).

DRAINAGE AREA.--1,548 mi^2 (4,009 km^2).

PERIOD OF RECORD.--January to October 1890 (monthly discharge only), October 1950 to September 1952, May 1974 to September 1975 (no winter records), October 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 5,582.45 ft (1,701.531 m) National Geodetic Vertical Datum of 1929. Prior to May 1974, records collected at site 0.6 mi (1.0 km) upstream at different datum.

REMARKS.--Records good except those for May 1 to Sept. 30, which are fair, and those for the winter periods, which are poor. Flow partly regulated by Lima Reservoir (station number 06012000). Diversions for irrigation of about 39,000 acres (158 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--7 years, 211 ft^3/s (5.976 m^3/s), 152,900 acre-ft/yr (189 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,130 ft^3/s (32.0 m^3/s) May 16, 1975, gage height, 4.23 ft (1.289 m); maximum gage height, 6.35 ft (1.935 m) Jan. 20, 1979 (backwater from ice); minimum daily discharge, 4.0 ft^3/s (0.11 m^3/s) May 24, 1951, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 522 ft^3/s (14.8 m^3/s) Sept. 14, gage height, 3.55 ft (1.082 m); maximum gage height, 5.03 ft (1.533 m) Jan. 31 (backwater from ice); minimum daily discharge, 46 ft^3/s (1.30 m^3/s) May 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	166	177	170	162	130	146	147	150	147	158	300	270
2	158	170	180	162	135	145	147	150	147	166	315	263
3	154	173	187	162	140	143	154	147	148	215	310	255
4	151	181	187	161	150	135	153	143	149	239	310	268
5	150	182	191	162	140	137	154	133	133	234	305	284
6	150	180	191	160	145	139	158	120	126	219	310	300
7	150	178	191	130	144	139	158	102	143	229	300	315
8	150	180	191	140	140	137	153	105	143	255	289	356
9	154	179	191	150	130	139	154	86	133	270	284	343
10	154	181	191	160	130	139	154	77	107	279	279	384
11	150	186	170	150	130	139	151	84	110	270	265	434
12	143	183	180	155	130	139	148	96	116	300	244	477
13	143	179	183	158	130	138	147	82	123	320	229	485
14	143	178	178	154	125	139	147	73	110	305	215	510
15	147	197	170	154	125	141	153	76	110	274	234	490
16	143	198	170	154	120	141	154	89	133	260	234	480
17	147	195	178	154	130	141	163	117	154	265	219	470
18	150	198	178	156	139	142	184	122	154	265	239	470
19	158	198	174	150	139	144	215	97	129	270	255	470
20	154	185	173	140	142	143	252	71	94	270	239	467
21	158	216	171	150	141	144	284	46	94	265	196	480
22	150	160	174	140	140	146	277	55	113	260	183	471
23	150	170	171	150	141	146	245	66	126	260	183	476
24	154	160	168	140	139	142	244	60	143	260	187	486
25	166	170	169	140	139	137	235	115	170	260	187	505
26	166	160	170	130	140	142	211	196	170	255	187	505
27	166	170	173	120	143	146	183	162	136	255	183	490
28	170	160	170	100	144	146	174	132	133	255	205	491
29	170	145	160	88	146	143	154	114	129	249	219	475
30	178	160	150	90	---	147	150	109	140	270	239	438
31	175	---	160	120	---	146	---	135	---	289	265	---
TOTAL	4818	5349	5460	4442	3967	4391	5403	3310	3963	7941	7609	12608
MEAN	155	178	176	143	137	142	180	107	132	256	245	420
MAX	178	216	191	162	150	147	284	196	170	320	315	510
MIN	143	145	150	88	120	135	147	46	94	158	183	255
AC-FT	9560	10610	10830	8810	7870	8710	10720	6570	7860	15750	15090	25010

CAL YR 1979 TOTAL 62363 MEAN 171 MAX 379 MIN 27 AC-FT 123700
WTR YR 1980 TOTAL 69261 MEAN 189 MAX 510 MIN 46 AC-FT 137400

06015300 CLARK CANYON RESERVOIR NEAR GRANT, MT

LOCATION.--Lat 45°00'06", long 112°51'27", in SE1/4 SW1/4 sec 32, T.9 S., R.10 W., Beaverhead County, Hydrologic Unit 10020001, in shaft house near left end of dam on Beaverhead River, 1.5 mi (2.4 km) upstream from Clark Canyon Creek, and 10 mi (16 km) east of Grant.

DRAINAGE AREA.--2,321 mi^2 (6,011 km^2).

PERIOD OF RECORD.--May 1964 to current year (monthend contents only). Records of daily elevations are in files of Helena district.

GAGE.--Water-stage recorder in shaft house. Datum of gage is referenced to National Geodetic Vertical Datum of 1929 (levels by U.S. Water and Power Resources Service).

REMARKS.--Reservoir is formed by zoned earthfill dam with concrete control works and spillway completed in October 1964. Storage began Aug. 28, 1964 (uncontrolled storage began June 10, 1964). Usable capacity, 257,200 acre-ft (317 hm^3) between elevation 5,455.00 ft (1,662.684 m), invert of outlet works, and 5,560.40 ft (1694.810 m), top of flood control. Dead storage, 61 acre-ft (75,200 m^3) below elevation 5,455.00 ft (1,662.684 m). Normal operating level, 177,500 acre-ft (219 hm^3) at elevation 5,546.00 ft (1,690.421 m). Minimum operating level, 1,450 acre-ft (1.79 hm^3) at elevation 5,470.60 ft (1,667.439 m). Figures given herein represent usable contents; total contents published in previous water-supply papers and annual reports for May 1964 to September 1975. Water is used for irrigation, flood control, and recreation.

COOPERATION.--Elevations and capacity table furnished by U.S. Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 236,600 acre-ft (292 hm^3) July 22, 1975 (elevation, 5,556.88 ft or 1,693.737 m); minimum since normal operating level was reached, 58,960 acre-ft (72.7 hm^3) Oct. 11, 1974 (elevation, 5,516.80 ft or 1,681.521 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents at 2400, 189,200 acre-ft (233 hm^3) June 17, elevation, 5,548.25 ft (1,691.107 m); minimum, 112,100 acre-ft (138 hm^3) Oct. 4, elevation, 5,532.16 ft (1,686.202 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Elevation (feet)	Contents (acre-feet)	Change in Contents (acre-feet)
Sept. 30	5,532.20	112,300	---
Oct. 31	5,533.53	118,000	+ 5,700
Nov. 30	5,535.62	127,200	+ 9,200
Dec. 31	5,537.80	137,200	+10,000
CAL YR 1979			-17,700
Jan. 31	5,539.41	144,800	+ 7,600
Feb. 29	5,540.77	151,300	+ 6,500
Mar. 31	5,542.44	159,500	+ 8,200
Apr. 30	5,544.60	170,300	+10,800
May 31	5,547.12	183,300	+13,000
June 30	5,547.14	183,400	+ 100
July 31	5,543.69	165,700	-17,700
Aug 31	5,538.67	141,200	-24,500
Sept. 30	5,540.20	148,500	+ 7,300
WTR YR 1980			+36,200

06015400 BEAVERHEAD RIVER NEAR GRANT, MT

LOCATION.--Lat 45°00'12", long 112°51'10", in NW¼SW¼SE¼ sec.32, T.9 S., R.10 W., Beaverhead County, Hydrologic Unit 10020002, on right bank 0.4 mi (0.6 km) downstream from Clark Canyon Dam, 1.3 mi (2.1 km) upstream from Clark Canyon Creek, and 10.3 mi (16.6 km) east of Grant, and at mile 2,483.6 (3,996.1 km).

DRAINAGE AREA.--2,322 mi² (6,014 km²).

PERIOD OF RECORD.--September 1962 to current year. Prior to October 1968, published as "near Armstead."

GAGE.--Water-stage recorder. Datum of gage is 5,442.78 ft (1,658.959 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good. Diversions for irrigation of about 76,500 acres (310 km²) above station. Flow completely regulated by Clark Canyon Reservoir (see preceding page). Several observations of water temperature were made during the water year and are available in files of Helena district office.

AVERAGE DISCHARGE.--18 years, 383 ft³/s (10.85 m³/s), 277,500 acre-ft/yr (342 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,110 ft³/s (59.8 m³/s) Feb. 7, 1963, gage height, 7.19 ft (2.192 m); no flow part of Oct. 1, 1968, when gates in dam were closed; minimum daily, 22 ft³/s (0.62 m³/s) Oct. 16, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 973 ft³/s (27.6 m³/s) July 30, gage height, 5.56 ft (1.695 m); minimum daily, 90 ft³/s (2.55 m³/s) Jan. 9, 14-17, 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	211	100	100	92	94	97	98	98	225	560	892	462
2	210	98	99	92	95	97	98	98	225	533	855	458
3	210	98	99	92	94	97	98	98	281	501	836	451
4	150	98	100	92	94	98	98	98	411	458	837	434
5	118	100	101	92	94	98	98	156	550	458	842	434
6	120	98	100	92	94	97	98	218	641	458	836	429
7	119	98	100	91	94	97	98	234	648	458	840	426
8	122	99	102	91	94	98	98	259	649	469	838	412
9	121	98	101	90	94	99	98	251	588	495	843	423
10	119	98	101	92	94	98	98	185	540	539	842	420
11	121	100	100	92	94	98	98	194	537	590	829	410
12	121	98	102	92	94	98	98	249	537	579	802	399
13	123	98	102	92	95	98	96	293	537	577	781	399
14	123	100	101	90	95	98	96	344	537	603	783	396
15	114	98	101	90	95	98	96	375	551	649	770	423
16	98	98	102	90	95	98	96	404	622	664	761	425
17	98	100	102	90	96	98	96	384	649	720	759	407
18	99	100	102	92	95	98	96	354	653	756	729	406
19	96	100	102	90	94	98	96	386	651	751	690	407
20	98	102	97	92	94	98	96	443	654	751	687	407
21	98	102	92	92	96	98	96	513	654	781	671	411
22	98	100	92	92	97	98	96	563	654	867	651	411
23	98	100	92	92	96	96	96	577	654	942	652	415
24	100	102	91	95	96	96	96	487	654	914	651	415
25	100	102	92	95	96	96	96	361	651	907	614	417
26	100	102	91	95	96	96	96	302	647	913	586	415
27	101	105	94	94	96	96	96	257	618	913	545	419
28	101	102	92	94	97	98	96	222	562	750	516	418
29	103	102	92	94	96	98	96	225	585	774	503	419
30	102	102	92	95	---	98	96	225	580	951	492	419
31	104	---	92	96	---	98	---	225	---	921	462	---
TOTAL	3696	2998	3026	2860	2754	3024	2904	9078	16945	21202	22395	12587
MEAN	119	99.9	97.6	92.3	95.0	97.5	96.8	293	565	684	722	420
MAX	211	105	102	96	97	99	98	577	654	951	892	462
MIN	96	98	91	90	94	96	96	98	225	458	462	396
AC-FT	7330	5950	6000	5670	5460	6000	5760	18010	33610	42050	44420	24970

CAL YR 1979 TOTAL 115890 MEAN 318 MAX 1030 MIN 91 AC-FT 229900
WTR YR 1980 TOTAL 103469 MEAN 283 MAX 951 MIN 90 AC-FT 205200

06016000 BEAVERHEAD RIVER AT BARRETTS, MT

LOCATION.--Lat 45°06'59", long 112°44'59", in SW¼SE¼ sec.19, T.8 S., R.9 W., Beaverhead County, Hydrologic Unit 10020002, on left bank 1 mi (2 km) upstream from Barretts, 2 mi (3 km) downstream from Grasshopper Creek, 8.9 mi (14.3 km) southwest of Dillon, and at mile 2,469.2 (3,972.9 km).

DRAINAGE AREA.--2,737 mi^2 (7,089 km^2).

PERIOD OF RECORD.--August 1907 to current year. Monthly discharge only for some periods, published in WSP 1309. Prior to October 1963, published as "at Barretts".

REVISED RECORDS.--WSP 1279: 1908(M), 1910-12(M), 1929(M), 1935-36. WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,268.17 ft (1,605.738 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 19, 1934, nonrecording gages at same site and datum.

REMARKS.--Records good. Some regulation by Lima Reservoir (station number 06012000) and nearly complete regulation by Clark Canyon Reservoir (station number 06015300) since August 1964. Diversions for irrigation of about 90,000 acres (364 km^2) above station.

AVERAGE DISCHARGE.--73 years, 425 ft^3/s (12.04 m^3/s), 307,900 acre-ft/yr (380 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,720 ft^3/s (105 m^3/s) June 20, 1908, gage height, 6.1 ft (1.86 m); minimum recorded, 69 ft^3/s (1.95 m^3/s) Jan. 30, 1939, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,150 ft^3/s (32.6 m^3/s) July 23, gage height, 2.55 ft (0.777 m); minimum daily, 130 ft^3/s (3.68 m^3/s) Jan. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	277	178	172	172	175	191	189	297	656	800	1020	530
2	277	169	181	172	172	190	190	277	628	830	974	530
3	274	184	181	175	175	187	190	281	746	836	932	540
4	245	190	184	175	175	186	19[illegible]	281	890	764	932	530
5	197	187	187	175	175	185	197	314	953	740	925	530
6	197	178	187	170	175	185	202	399	1040	698	925	530
7	197	178	193	160	178	184	193	432	1120	674	911	525
8	196	184	190	170	178	185	194	465	1100	674	918	530
9	194	175	190	175	178	184	195	540	974	698	918	535
10	193	181	190	172	178	187	190	535	860	716	911	530
11	193	181	178	172	175	188	191	515	854	770	897	535
12	197	175	169	175	175	189	190	515	878	752	872	530
13	200	166	172	175	175	182	198	520	946	758	830	525
14	200	169	181	175	178	187	217	545	925	770	824	540
15	200	169	184	178	175	190	239	562	953	836	824	535
16	184	166	187	178	175	183	227	617	1060	836	800	530
17	181	181	184	178	175	181	235	633	1060	878	794	500
18	181	181	184	178	175	188	256	606	1010	925	770	500
19	184	175	187	178	181	189	268	589	1020	911	728	490
20	190	160	184	170	183	187	278	633	995	904	716	495
21	190	151	181	175	182	191	283	686	1000	932	704	495
22	193	154	184	175	183	193	257	746	995	1020	674	500
23	190	163	181	175	185	192	269	848	981	1130	674	495
24	193	166	178	175	184	186	269	946	1010	1120	674	495
25	193	163	178	178	181	187	277	848	1000	1090	650	485
26	193	166	181	170	183	184	289	734	953	1080	611	490
27	193	160	178	150	190	190	297	680	872	1080	578	490
28	197	154	169	130	191	184	293	622	800	953	567	495
29	193	150	166	160	190	188	281	617	842	788	551	500
30	190	169	166	160	---	191	305	622	818	1090	551	500
31	184	---	169	170	---	182	---	650	---	1070	535	---
TOTAL	6266	5123	5596	5291	5195	5796	7051	17555	27939	27123	24190	15435
MEAN	202	171	181	171	179	187	235	566	931	875	780	515
MAX	277	190	193	178	191	193	305	946	1120	1130	1020	540
MIN	181	150	166	130	172	181	189	277	628	674	535	485
AC-FT	12430	10160	11100	10490	10300	11500	13990	34820	55420	53800	47980	30620

CAL YR 1979 TOTAL 155723 MEAN 427 MAX 1250 MIN 150 AC-FT 308900
WTR YR 1980 TOTAL 152560 MEAN 417 MAX 1130 MIN 130 AC-FT 302600

06018000 BEAVERHEAD RIVER NEAR DILLON, MT

LOCATION.--Lat 45°18'18", long 112°33'45", in NW¼NE¼NE¼ sec.22, T.6 S., R.8 W., Beaverhead County, Hydrologic Unit 10020002, on right bank just upstream from county road bridge on Anderson Lane, 7.0 mi (11.3 km) northeast of Dillon.

DRAINAGE AREA.--3,484 mi^2 (9,024 km^2).

PERIOD OF RECORD.--October 1950 to September 1952, August 1963 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,960 ft (1,512 m), by barometer. Prior to August 1963, nonrecording gage on upstream side of bridge at same datum.

REMARKS.--Records good except those for June to September, which are fair, and those for winter period, which are poor. Flow partly regulated by Lima Reservoir (station number 06012000) and Clark Canyon Reservoir (station number 06015300) since August 1964. Diversions above station for irrigation of about 133,400 acres (540 km^2) of which about 5,000 acres (20.2 km^2) are irrigated by imported water from Birch and Willow Creeks and of which about 17,100 acres (69.2 km^2) lies below station including about 600 acres (2.43 km^2) in Ruby River drainage.

AVERAGE DISCHARGE.--19 years, 374 ft^3/s (10.59 m^3/s), 271,000 acre-ft/yr (344 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,570 ft^3/s (44.5 m^3/s) June 22, 1964, gage height, 5.52 ft (1.682 m); maximum gage height, 6.35 ft (1.935 m) Dec. 19, 1964 (backwater from ice); minimum discharge observed, 8.5 ft^3/s (0.24 m^3/s) June 21, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,000 ft^3/s (28.3 m^3/s) June 8, gage height, 4.60 ft (1.402 m); maximum gage height, 5.61 ft (1.710 m) Jan. 30 (backwater from ice), but may have been higher during period of no gage-height record, Feb. 1 to Mar. 11; minimum daily discharge, 16 ft^3/s (0.45 m^3/s) May 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	267	260	250	230	300	307	140	355	230	154	345
2	77	262	265	255	240	290	307	120	311	238	186	370
3	77	280	267	260	265	280	307	110	370	321	170	365
4	73	293	271	260	260	270	307	90	585	370	151	335
5	73	311	275	240	260	260	316	70	701	325	142	325
6	83	307	275	190	260	270	321	60	809	280	151	321
7	89	302	275	170	265	270	316	75	937	254	136	316
8	83	307	280	160	260	270	307	100	988	208	136	350
9	73	307	280	180	260	280	307	136	937	176	173	340
10	67	311	280	230	255	290	307	173	757	180	190	360
11	73	335	240	240	250	302	307	157	667	208	200	430
12	73	311	235	245	240	297	302	151	662	204	186	459
13	75	311	235	250	210	288	302	105	673	180	170	471
14	77	302	258	250	110	293	321	94	673	157	176	537
15	85	297	258	250	100	307	335	79	673	160	197	525
16	96	302	240	230	130	288	325	71	726	140	215	506
17	100	325	265	200	180	284	321	103	726	130	193	488
18	108	325	258	160	280	302	311	87	634	125	190	482
19	142	321	262	140	310	302	307	50	561	150	197	494
20	204	284	258	170	300	293	321	27	525	140	208	513
21	230	250	254	230	290	307	325	16	543	130	238	531
22	230	240	258	220	280	307	302	25	531	125	258	519
23	246	250	257	230	270	302	297	53	513	139	288	513
24	254	260	250	230	260	297	271	163	471	145	288	506
25	262	260	250	150	260	297	254	262	453	126	302	500
26	254	250	250	95	270	293	258	275	397	126	311	494
27	258	230	250	80	280	307	254	246	330	131	376	494
28	275	220	240	100	285	302	190	204	254	180	386	488
29	271	230	240	115	290	297	140	190	208	250	370	488
30	280	250	240	140	---	307	130	242	215	163	376	471
31	271	---	242	170	---	293	---	330	---	148	350	---
TOTAL	4636	8500	7968	6090	7150	9045	8675	4004	17185	5839	7064	13336
MEAN	150	283	257	196	247	292	289	129	573	188	228	445
MAX	280	335	280	260	310	307	335	330	988	370	386	537
MIN	67	220	235	80	100	260	130	16	208	125	136	316
AC-FT	9200	16860	15800	12080	14180	17940	17210	7940	34090	11580	14010	26450

CAL YR 1979 TOTAL 93501 MEAN 256 MAX 595 MIN 67 AC-FT 185500
WTR YR 1980 TOTAL 99492 MEAN 272 MAX 988 MIN 16 AC-FT 197300

06018500 BEAVERHEAD RIVER NEAR TWIN BRIDGES, MT

LOCATION.--Lat 45°23'01", long 112°27'07", in SW¼NW¼S¼ sec.22, T.5 S., R.7 W., Madison County, Hydrologic Unit 10020002, on left bank at downstream side of bridge on State Highway 41, 11.5 mi (18.5 km) upstream from Ruby River, 12.7 mi (20.4 km) southwest of Twin Bridges, 14.5 mi (23.3 km) northeast of Dillon, and at mile 2,340.4 (3,910.5 km).

DRAINAGE AREA.--3,619 mi^2 (9,373 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1935 to current year. Prior to October 1968, published as "at Blaine."

REVISED RECORDS.--WSP 1309: 1938(M), 1945(M). WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,809.15 ft (1,465.829 m) National Geodetic Vertical Datum of 1929. Prior to Feb. 17, 1949, nonrecording gage at bridge 0.5 mi (0.8 km) upstream at different datum. Feb. 17, 1949, to June 28, 1951, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Flow partly regulated by Lima Reservoir (station number 06012000) and Clark Canyon Reservoir (station number 06015300) since August 1964. Diversions above station for irrigation of about 135,400 acres (548 km^2) of which about 5,000 acres (20.2 km^2) are irrigated by imported water from Birch and Willow Creeks and of which about 9,200 acres (37.2 km^2) lies below station including 600 acres (2.43 km^2) in Ruby River drainage.

AVERAGE DISCHARGE.--45 years, 411 ft^3/s (11.64 m^3/s), 297,800 acre-ft/yr (367 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 3,130 ft^3/s (88.6 m^3/s) June 12, 1944, gage height, 6.76 ft (2.060 m), site and datum then in use; minimum observed, 7.0 ft^3/s (0.20 m^3/s) May 25, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,020 ft^3/s (28.9 m^3/s) June 8, gage height, 5.92 ft (1.804 m); minimum, 52 ft^3/s (1.47 m^3/s) May 22, gage height, 2.77 ft (0.844 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	160	362	330	327	290	384	386	218	512	252	151	427
2	154	353	337	325	306	370	389	188	512	265	160	430
3	147	368	342	326	329	363	386	181	526	383	183	436
4	146	380	347	323	340	347	389	149	692	489	175	427
5	133	402	351	331	330	340	398	141	813	449	158	427
6	135	395	353	286	332	352	408	136	876	389	179	417
7	144	392	357	250	343	349	405	154	969	351	177	414
8	139	392	361	230	339	349	392	168	1010	313	179	443
9	103	389	365	275	326	351	394	186	964	260	197	443
10	101	386	367	300	325	365	389	216	817	252	240	436
11	106	411	326	310	323	377	386	218	657	255	263	609
12	119	392	325	320	322	374	386	211	634	276	235	663
13	115	383	331	326	308	368	398	192	616	263	265	611
14	121	377	349	326	175	377	415	179	620	247	289	701
15	151	371	348	329	170	383	421	143	627	242	311	690
16	199	374	315	297	200	365	417	145	669	240	389	651
17	243	395	368	275	320	356	401	156	634	220	383	638
18	244	405	350	230	372	377	393	162	579	220	371	624
19	260	398	352	200	416	380	401	130	502	265	398	646
20	310	359	352	230	391	374	400	94	433	240	411	657
21	336	319	346	300	390	383	398	78	449	168	405	668
22	339	300	348	270	356	380	386	60	433	139	411	653
23	363	300	346	290	349	383	368	78	439	154	443	657
24	366	310	341	300	344	377	342	204	423	143	430	665
25	379	320	339	250	341	377	319	398	377	143	414	650
26	368	320	339	170	348	371	308	512	353	134	423	640
27	365	300	336	150	364	383	305	426	292	126	492	639
28	382	375	306	270	375	383	252	389	245	134	547	632
29	388	280	307	190	409	377	195	351	197	250	489	614
30	382	290	310	210	---	389	208	386	220	181	479	606
31	374	---	321	223	---	374	---	465	---	154	462	---
TOTAL	7272	10798	10565	8439	9533	11478	11035	6714	17090	7597	10109	17214
MEAN	235	360	341	272	329	370	368	217	570	245	326	574
MAX	388	411	368	331	416	389	421	512	1010	489	547	701
MIN	101	280	306	150	170	340	195	60	197	126	151	414
AC-FT	14420	21420	20960	16740	18910	22770	21890	13320	33900	15070	20050	34140

CAL YR 1979 TOTAL 122657 MEAN 336 MAX 880 MIN 76 AC-FT 243300
WTR YR 1980 TOTAL 127844 MEAN 349 MAX 1010 MIN 60 AC-FT 253600

06018500 BEAVERHEAD RIVER NEAR TWIN BRIDGES, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950-51, 1962 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1962 to current year.

REMARKS.--Once-daily water temperatures are available in District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 896 micromhos June 23, 1963; minimum daily, 433 micromhos May 23, 1969.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 793 micromhos Oct. 15; minimum daily, 581 micromhos Dec. 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
OCT												
02...	0920	153	--	767	--	--	11.0	300	82	73	29	35
31...	1000	378	--	680	--	--	3.0	300	84	82	24	30
NOV												
28...	1130	277	--	675	--	--	.5	300	72	78	26	28
DEC												
19...	0900	345	0	690	--	-4.0	.5	290	70	75	25	27
JAN												
30...	1400	225	0	758	8.2	-8.0	.5	340	90	85	31	33
MAR												
11...	1030	365	--	632	8.3	7.0	6.0	280	72	70	26	25
APR												
22...	1300	411	3	590	8.2	18.0	11.0	230	47	58	20	23
MAY												
29...	1145	333	60	708	8.2	12.5	11.5	290	73	73	27	30
JUL												
16...	1115	250	--	709	8.2	--	14.0	300	73	72	30	32
SEP												
10...	1045	427	52	681	8.1	10.5	14.0	280	63	69	27	27

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT												
02...	.9	8.6	220	140	23	.5	25	469	.64	194	.63	.00
31...	.7	6.3	220	120	17	.5	22	437	.59	446	.67	.00
NOV												
28...	.7	6.1	230	130	15	.5	23	448	.61	335	.63	.00
DEC												
19...	.7	5.6	220	100	19	.5	22	409	.56	381	.63	.02
JAN												
30...	.8	7.7	250	130	18	.6	30	490	.67	298	.89	.05
MAR												
11...	.6	5.2	210	110	16	.5	21	402	.55	396	.46	.01
APR												
22...	.7	5.6	180	92	14	.3	18	341	.46	378	.41	.03
MAY												
29...	.8	7.2	220	110	19	.5	27	428	.58	385	.51	.02
JUL												
16...	.8	7.5	230	110	20	.8	24	435	.59	294	.16	.02
SEP												
10...	.7	6.3	220	98	20	.5	24	404	.55	466	.08	.01

06018500 BEAVERHEAD RIVER NEAR TWIN BRIDGES, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	743	680	653	700	667	652	651	660	596	661	710	660
2	753	671	671	681	660	671	644	769	608	671	690	630
3	758	676	581	668	648	680	662	699	639	673	722	639
4	754	671	672	661	652	660	657	767	591	660	718	660
5	751	667	667	658	639	665	663	759	590	662	751	665
6	750	660	677	667	650	668	660	769	593	708	738	651
7	752	664	681	685	650	663	651	692	639	680	722	651
8	753	662	670	692	652	664	670	754	601	708	720	650
9	755	655	672	740	653	661	655	748	610	707	721	661
10	761	647	673	717	649	657	651	701	594	670	729	679
11	770	647	672	693	650	650	661	760	609	680	711	672
12	789	649	684	713	651	650	638	766	596	690	751	720
13	792	648	699	725	655	652	639	745	590	698	703	720
14	792	664	680	704	683	661	636	744	588	664	740	650
15	793	655	679	670	651	673	651	740	689	694	749	675
16	722	652	662	682	685	665	620	761	589	664	751	650
17	711	631	671	677	627	656	636	762	611	680	753	630
18	761	623	675	677	638	662	630	728	604	701	750	645
19	752	626	571	671	630	665	620	748	652	664	700	650
20	753	633	671	670	633	656	650	750	611	700	750	632
21	712	667	659	672	653	645	636	742	650	690	694	630
22	698	661	669	684	670	651	611	776	621	690	721	632
23	693	659	668	701	690	651	632	691	661	701	709	623
24	686	650	672	669	662	662	604	760	640	683	698	630
25	675	631	666	685	651	671	619	680	684	690	693	635
26	678	648	674	790	655	662	650	685	659	659	691	629
27	680	609	690	769	658	669	631	689	652	686	682	640
28	682	662	665	772	649	670	619	680	663	684	679	635
29	679	652	689	788	656	670	646	690	670	686	689	630
30	681	680	672	777	---	661	671	691	657	689	680	620
31	680	---	---	767	---	652	---	755	---	708	688	---
MEAN	733	653	670	704	654	661	642	731	625	684	716	650

WTR YR 1980 MEAN 677 MAX 793 MIN 581

06019500 RUBY RIVER ABOVE RESERVOIR, NEAR ALDER, MT

LOCATION.--Lat 45°10'31", long 112°08'52", in SW¼SW¼ sec.31, T.7 S., R.4 W., Madison County, Hydrologic Unit 10020003, on left bank at Puller Hot Springs, 0.4 mi (0.6 km) upstream from Cottonwood Creek, 6 mi (10 km) upstream from Ruby Dam, 10.5 mi (16.9 km) south of Alder, and at mile 54.4 (87.5 km).

DRAINAGE AREA.--538 mi^2 (1,393 km^2).

PERIOD OF RECORD.--May 1938 to current year. Monthly discharge only for May 1938, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1938(M). WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,440.2 ft (1,658.17 m) National Geodetic Vertical Datum of 1929 (river-profile survey). Prior to Oct. 1, 1938, nonrecording gage at bridge 1,500 ft (457 m) downstream at datum 5.2 ft (1.58 m) lower. Oct. 1, 1938, to Aug. 5, 1955, water-stage recorder at site 500 ft (152 m) downstream at datum 0.5 ft (0.15 m) lower.

REMARKS.--Records excellent except those for Dec. 29 to Feb. 16, which are fair, and those for Aug. 14 to Sept. 9, which are poor. Diversions for irrigation of about 3,000 acres (12.1 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--42 years, 178 ft^3/s (5.041 m^3/s), 129,000 acre-ft/yr (159 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,670 ft^3/s (47.3 m^3/s) June 10, 1970, gage height, 5.62 ft (1.713 m); minimum daily, 35 ft^3/s (0.99 m^3/s) Jan. 23, 1962.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 640 ft^3/s (18.1 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 2	0800	765	21.7	3.94	1.201	June 2	2000	735	20.8	3.95	1.204
May 9	1300	*893	25.3	*4.18	1.274	June 12	0800	841	23.8	4.15	1.265
May 22	0700	745	21.1	3.97	1.210						

Minimum discharge, 74 ft^3/s (2.10 m^3/s) Oct. 3, gage height, 2.22 ft (0.677 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	107	105	115	96	107	106	650	592	283	138	125
2	76	105	116	110	98	107	104	629	678	268	133	130
3	75	116	113	105	100	107	102	531	653	302	127	140
4	77	120	118	105	102	105	105	507	585	319	130	138
5	84	120	119	110	101	102	111	545	547	292	143	135
6	86	119	119	100	103	105	113	575	549	267	140	135
7	86	121	120	97	104	103	107	714	589	247	130	138
8	86	121	120	95	106	103	103	709	554	233	130	138
9	88	118	119	98	108	102	109	798	594	255	133	140
10	92	117	120	105	110	104	104	645	663	236	130	140
11	94	121	110	102	107	108	107	483	732	222	130	201
12	95	111	111	108	105	106	106	411	774	217	127	215
13	96	113	116	110	105	100	105	361	701	207	130	184
14	97	111	113	113	100	107	113	341	630	204	130	212
15	103	112	113	111	96	108	126	335	596	185	140	184
16	119	112	113	110	100	100	118	453	593	171	165	165
17	110	119	113	110	103	100	123	442	535	165	155	158
18	103	122	113	109	106	108	139	413	518	159	150	153
19	97	119	113	110	114	104	147	402	505	159	150	152
20	99	112	114	105	123	102	186	471	493	162	160	146
21	99	105	113	105	111	105	217	553	490	162	150	169
22	111	110	115	105	106	103	247	617	459	151	140	157
23	122	110	113	108	104	103	257	658	439	146	135	151
24	120	116	109	110	102	103	301	590	404	143	130	150
25	117	115	114	100	102	103	377	612	358	143	128	146
26	115	116	113	96	104	97	394	540	327	140	125	146
27	114	113	110	94	108	108	389	481	299	135	125	146
28	120	110	111	92	113	105	394	486	287	133	140	144
29	118	108	110	90	115	103	456	497	276	133	135	142
30	109	105	110	90	---	109	624	573	270	135	130	140
31	102	---	115	92	---	103	---	573	---	138	125	---
TOTAL	3090	3424	3531	3210	3052	3230	5990	16595	15690	6112	4234	4620
MEAN	99.7	114	114	104	105	104	200	535	523	197	137	154
MAX	122	122	120	115	123	109	624	798	774	319	165	215
MIN	75	105	105	90	96	97	102	335	270	133	125	125
AC-FT	6130	6790	7000	6370	6050	6410	11880	32920	31120	12120	8400	9160

CAL YR 1979 TOTAL 55579 MEAN 152 MAX 831 MIN 75 AC-FT 110200
WTR YR 1980 TOTAL 72778 MEAN 199 MAX 798 MIN 75 AC-FT 144400

06020600 RUBY RIVER BELOW RESERVOIR, NEAR ALDER, MT

LOCATION.--Lat 45°14'32", long 112°06'36", in SE¼NE¼ sec.8, T.7 S., R.4 W., Madison County, Hydrologic Unit 10020003, on right bank 0.2 mi (0.3 km) downstream from Ruby Dam, 5.7 mi (9.2 km) south of Alder, and at mile 47.8 (76.9 km).

DRAINAGE AREA.--596 mi^2 (1,544 km^2).

PERIOD OF RECORD.--November 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 5,286.63 ft (1,611.365 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except those for Nov. 28 to Dec. 17, and those for period of no gage-height record, Dec. 29 to Jan. 28, which are fair. Flow regulated by Ruby River Reservoir (station number 06020500). Diversions for irrigation of about 3,500 acres (14.2 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--17 years (water years 1964-80), 220 ft^3/s (6.230 m^3/s), 159,400 acre-ft/yr (197 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,610 ft^3/s (45.6 m^3/s), June 10, 1970, gage height, 5.37 ft (1.637 m), minimum, 1.4 ft^3/s (0.040 m^3/s) Dec. 5, 1974, dam closure, result of discharge measurement; minimum daily, 19 ft^3/s (0.54 m^3/s) Feb. 15-19, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 944 ft^3/s (26.7 m^3/s) June 12, gage height, 3.84 ft (1.170 m); minimum daily, 34 ft^3/s (0.96 m^3/s) Nov. 7-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88	45	39	37	39	38	39	97	723	308	433	321
2	88	46	39	37	39	38	39	125	766	329	430	322
3	88	46	38	37	39	38	39	145	813	338	428	321
4	88	47	38	37	39	38	40	157	765	316	425	322
5	90	48	38	37	39	38	40	162	714	322	422	322
6	91	40	38	37	39	38	40	315	687	307	419	322
7	92	34	37	37	39	38	40	582	743	286	415	285
8	71	34	37	37	39	38	40	769	716	267	412	210
9	64	34	37	37	38	38	40	770	719	264	410	181
10	66	34	37	37	38	38	40	787	762	265	408	184
11	68	35	37	37	38	38	40	660	811	249	406	186
12	70	35	37	37	38	38	40	526	873	289	403	187
13	71	35	36	37	38	38	40	438	846	316	401	187
14	59	36	36	38	38	38	40	389	794	316	457	187
15	49	36	36	38	38	38	40	360	752	312	483	188
16	51	36	36	38	38	39	40	404	741	312	475	188
17	52	37	36	38	38	39	40	499	683	311	469	188
18	53	37	36	38	38	39	40	475	619	311	463	188
19	54	37	36	38	38	39	40	449	580	326	456	188
20	55	37	36	38	38	39	40	477	571	342	452	188
21	56	37	37	38	37	39	40	570	560	342	447	188
22	45	38	37	38	37	39	40	690	531	341	417	187
23	41	38	37	38	37	39	40	747	489	375	372	187
24	41	38	37	38	37	39	40	767	479	390	372	186
25	42	39	37	38	37	39	40	762	428	389	373	185
26	43	39	37	38	37	39	40	745	377	386	374	184
27	44	39	37	38	37	39	40	593	389	384	374	185
28	44	39	37	38	37	39	46	554	411	383	374	185
29	44	39	37	38	38	39	62	559	381	423	375	184
30	45	39	37	39	---	39	62	664	319	441	350	184
31	45	---	37	39	---	39	---	701	---	438	319	---
TOTAL	1898	1154	1147	1167	1102	1194	1247	15958	19042	10378	12814	6520
MEAN	61.2	38.5	37.0	37.6	38.0	38.5	41.6	515	635	335	413	217
MAX	92	48	39	39	39	39	62	787	873	441	483	322
MIN	41	34	36	37	37	38	39	97	319	249	319	181
AC-FT	3760	2290	2280	2310	2190	2370	2470	31650	37770	20580	25420	12930

CAL YR 1979 TOTAL 65894 MEAN 181 MAX 858 MIN 34 AC-FT 130700
WTR YR 1980 TOTAL 73621 MEAN 201 MAX 873 MIN 34 AC-FT 146000

RUBY RIVER BASIN

06023000 RUBY RIVER NEAR TWIN BRIDGES, MT

LOCATION.--Lat 45°30'28", long 112°19'48", in SE¼NE¼NW¼ sec.10, T.4 S., R.6 W., Madison County, Hydrologic Unit 10020003, on right bank 300 ft (91 m) upstream from county bridge, 1.2 mi (1.9 km) upstream from mouth, and 2.6 mi (4.2 km) south of Twin Bridges, MT.

DRAINAGE AREA.--935 mi² (2,422 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August to October 1940, July 1941 to June 1943, July 1946 to September 1965, and July 1, 1979, to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,660 ft (1,420 m), from topographic map.

REMARKS.--Water-discharge records fair except those for winter period, which are fair. Diversions for irrigation of about 28,500 acres (115 km²), of which about 500 acres (2.0 km²) lies below station. Some regulation by Ruby River Reservoir (station number 06020500) 24 mi (39 km) above station.

AVERAGE DISCHARGE.--21 years (water years 1942, 1947-65, 1980), 197 ft³/s (5.579 m³/s), 142,700 acre-ft/yr (176 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,500 ft³/s (42.5 m³/s) June 12, 1947, gage height, 6.89 ft (2.100 m), site and datum then in use; minimum daily, 1.8 ft³/s (0.051 m³/s) May 20, 21, 26, 27, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 765 ft³/s (21.7 m³/s) June 13, gage height, 6.73 ft (2.051 m); maximum gage height, 7.58 ft (2.310 m) Jan. 27-30, but could have been higher during period of ice effect; minimum daily discharge, 110 ft³/s (3.12 m³/s) Jan. 28, but may have been less during period of ice effect.

DISCHARGE, IN CUBIC FEET PER SECOND, JULY TO SEPTEMBER 1979

DAY	JULY	AUG	SEPT	DAY	JULY	AUG	SEPT	DAY	JULY	AUG	SEPT	DAY	JULY	AUG	SEPT
1	169	113	218	9	169	90	196	17	160	165	200	25	144	232	158
2	169	115	209	10	165	98	189	18	152	160	198	26	131	223	154
3	165	105	209	11	156	129	191	19	135	169	191	27	111	237	150
4	169	98	198	12	144	161	198	20	127	193	174	28	113	247	144
5	165	90	202	13	139	154	200	21	119	207	171	29	129	228	139
6	169	98	196	14	148	189	200	22	115	209	171	30	129	221	133
7	161	125	193	15	165	187	193	23	148	216	167	31	127	216	---
8	156	121	198	16	169	171	205	24	152	209	161				

	JULY	AUG	SEPT
TOTAL..	4570	5176	5506
MEAN..	147	167	184
MAX..	169	247	218
MIN..	111	90	133
AC-FT..	9060	10270	10920

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	198	149	151	130	167	135	128	471	406	127	223
2	131	198	160	147	130	152	129	128	510	379	115	230
3	131	200	172	147	120	146	128	131	550	449	113	237
4	135	202	173	143	120	139	131	122	567	525	125	230
5	135	200	172	150	125	130	127	119	600	530	128	230
6	138	198	171	142	130	130	127	117	560	485	146	228
7	140	191	173	140	135	139	119	179	540	455	167	214
8	140	189	179	130	135	137	121	268	560	418	150	221
9	140	187	176	130	139	135	120	358	540	385	135	214
10	145	187	171	130	135	137	118	366	580	347	129	218
11	145	184	168	130	131	146	118	401	620	330	131	290
12	150	180	160	138	133	142	118	346	660	307	121	348
13	150	180	150	140	131	142	118	261	700	318	125	298
14	160	176	160	148	139	146	118	198	680	305	160	333
15	165	178	164	152	130	142	118	137	640	308	182	305
16	165	180	160	144	120	134	116	117	600	300	198	285
17	175	187	150	144	130	136	117	127	580	285	193	288
18	180	187	167	140	140	142	118	150	560	244	193	273
19	185	182	159	130	150	141	118	137	520	221	225	293
20	185	176	158	120	176	140	121	125	480	205	209	290
21	190	170	158	130	158	141	123	121	460	198	212	323
22	190	160	158	130	150	140	128	163	430	180	218	323
23	185	160	157	140	146	141	141	249	400	171	216	325
24	185	165	155	140	142	139	149	318	380	160	207	330
25	190	167	155	140	142	135	148	411	400	150	205	325
26	200	165	154	130	137	134	147	550	430	142	207	323
27	200	150	150	120	148	135	136	468	470	129	212	325
28	210	148	140	110	156	136	121	369	472	137	230	318
29	200	142	140	120	176	133	114	315	457	123	216	318
30	193	142	140	130	---	129	136	369	421	125	209	320
31	193	---	145	130	---	128	---	449	---	131	223	---
TOTAL	5166	5329	4944	4216	4034	4314	3778	7697	15838	8848	5427	8478
MEAN	167	178	159	136	139	139	126	248	528	285	175	283
MAX	210	202	179	152	176	167	149	550	700	530	230	348
MIN	131	142	140	110	120	128	114	117	380	123	113	214
AC-FT	10250	10570	9810	8360	8000	8560	7490	15270	31410	17550	10760	16820

WTR YR 1980 TOTAL 78069 MEAN 213 MAX 700 MIN 110 AC-FT 154800

06023000 RUBY RIVER NEAR TWIN BRIDGES, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: September 1979 to current year.

INSTRUMENTATION.--Temperature recorder since Sept. 5, 1979.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 21.5°C on several days during July 1980; minimum, 0.0°C on many days during winter period.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 21.5°C on several days during July; minimum, 0.0°C on many days during November to February.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1978 TO SEPTEMBER 1979

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1										---	---	---
2										---	---	---
3										---	---	---
4										---	---	---
5										16.0	---	---
6										17.0	12.0	14.5
7										17.0	12.5	15.0
8										16.5	13.0	15.0
9										17.0	13.0	15.0
10										16.0	12.0	14.0
11										14.5	10.5	12.5
12										14.0	9.5	11.5
13										14.0	10.5	12.0
14										14.0	10.0	12.0
15										15.0	10.5	12.5
16										15.0	11.0	13.0
17										15.5	11.5	13.5
18										15.0	11.0	13.5
19										15.0	11.0	13.0
20										15.0	11.0	13.0
21										15.0	11.0	13.0
22										15.0	11.0	13.0
23										15.0	11.0	13.0
24										14.5	10.5	12.5
25										13.0	11.0	12.0
26										14.0	11.0	12.5
27										14.0	10.0	12.0
28										14.0	10.0	12.0
29										14.5	10.0	12.5
30										14.0	11.0	12.5
31										---	---	---
MONTH										17.0	9.5	13.0

06023000 RUBY RIVER NEAR TWIN BRIDGES, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	13.5	9.0	11.5	5.0	3.0	4.0	.0	.0	.0	---	---	---
2	13.5	10.0	11.5	4.5	2.0	3.5	2.0	.0	.5	---	---	---
3	12.0	8.0	10.0	5.5	4.0	5.0	4.0	2.0	3.0	---	---	---
4	12.0	7.5	10.0	5.5	4.5	5.0	3.5	3.0	3.0	---	---	---
5	13.5	9.5	11.5	5.5	4.0	5.0	3.0	2.5	2.5	---	---	---
6	13.5	9.5	11.5	5.5	3.5	4.5	3.0	2.5	3.0	---	---	---
7	14.0	10.0	12.0	5.0	3.0	4.0	4.0	3.0	3.5	---	---	---
8	12.5	8.5	10.5	5.5	3.5	4.0	4.5	3.0	3.5	---	---	---
9	10.5	7.0	8.5	4.0	2.5	3.0	4.0	2.5	3.5	---	---	---
10	11.5	7.0	9.5	4.5	3.0	3.5	3.5	.5	2.5	---	---	---
11	12.5	8.5	10.5	4.5	3.0	3.5	.5	.0	.0	---	---	---
12	12.5	8.5	10.5	4.0	2.0	3.0	---	---	---	---	---	---
13	12.5	8.0	10.0	3.5	2.0	2.5	---	---	---	---	---	---
14	11.0	9.0	10.0	3.5	1.5	2.5	---	---	---	---	---	---
15	10.0	9.5	9.5	3.5	1.5	2.5	---	---	---	3.5	---	---
16	11.0	8.5	10.0	3.5	1.5	2.5	---	---	---	3.0	1.0	2.0
17	10.0	8.0	9.0	4.5	4.0	4.5	---	---	---	3.0	1.0	2.0
18	8.5	7.0	7.5	5.0	4.0	4.5	---	---	---	1.0	.0	.0
19	9.0	7.5	8.0	4.5	2.5	3.5	---	---	---	.0	.0	.0
20	7.0	6.0	6.5	2.0	.0	1.0	---	---	---	.0	.0	.0
21	8.5	5.0	6.5	.5	.0	.0	---	---	---	.0	.0	.0
22	7.0	5.5	6.5	.0	.0	.0	---	---	---	.0	.0	.0
23	8.5	7.0	7.5	1.0	.0	.5	---	---	---	.0	.0	.0
24	9.5	7.5	8.5	1.0	.5	1.0	---	---	---	1.0	.0	.5
25	9.5	8.0	8.5	2.0	.5	1.0	---	---	---	.5	.0	.0
26	9.0	7.0	8.0	1.0	.0	.5	---	---	---	.0	.0	.0
27	7.5	5.0	6.5	1.0	.0	.0	---	---	---	.0	.0	.0
28	7.5	6.5	7.0	.0	.0	.0	---	---	---	.0	.0	.0
29	6.5	5.0	6.0	.0	.0	.0	---	---	---	.0	.0	.0
30	5.5	3.5	4.5	.0	.0	.0	---	---	---	.0	.0	.0
31	5.0	3.0	4.0	---	---	---	---	---	---	.5	.0	.5
MONTH	14.0	3.0	9.0	5.5	.0	2.5	4.5	.0	2.5	3.5	.0	.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.5	.5	.5	8.0	4.5	6.5	8.5	5.0	6.5	15.5	8.0	11.5
2	1.0	.0	.5	7.5	5.0	6.5	8.5	4.5	6.5	16.5	10.5	---
3	.0	.0	.0	6.0	3.0	5.0	9.5	4.5	7.0	15.0	12.0	13.5
4	.5	.0	.5	3.5	1.5	2.0	---	---	---	17.5	10.5	---
5	.5	.5	.5	2.0	1.5	1.5	---	---	---	18.0	11.0	14.5
6	1.0	.5	.5	4.5	1.5	2.5	---	---	---	16.0	13.0	14.5
7	3.0	1.0	2.0	5.0	3.0	4.0	---	---	---	13.5	11.5	12.5
8	3.5	1.5	2.0	5.5	3.0	4.0	7.5	---	---	---	10.5	---
9	3.0	1.0	1.5	4.5	3.0	3.5	7.0	4.5	5.5	12.5	10.0	11.5
10	3.5	1.0	2.0	8.0	4.0	5.0	6.0	3.0	4.5	11.5	10.0	10.5
11	3.0	1.0	2.0	6.0	4.0	5.0	8.5	4.0	6.5	10.0	8.5	9.5
12	3.0	1.5	2.0	5.0	2.5	4.0	11.0	4.5	7.5	12.0	8.0	---
13	2.0	.5	1.0	5.0	2.0	4.0	12.5	5.5	9.0	12.0	9.0	11.0
14	.5	.5	.5	7.0	4.0	6.0	14.0	7.0	10.5	15.0	9.0	---
15	.5	.0	.0	5.5	3.5	4.5	12.0	7.5	9.5	14.5	10.0	---
16	.0	.0	.0	6.0	1.5	3.5	12.5	5.5	9.0	12.5	10.5	---
17	.0	.0	.0	6.5	1.5	4.0	14.0	7.0	10.5	15.5	9.0	---
18	3.5	.0	.5	7.0	4.0	5.0	13.5	8.5	11.0	17.0	10.5	---
19	6.0	3.5	4.5	6.5	4.0	5.0	15.0	8.5	11.5	17.0	13.0	---
20	5.0	3.5	4.0	7.0	2.5	5.0	16.0	9.5	12.5	19.0	12.5	---
21	5.5	3.5	4.5	7.0	4.5	5.5	15.5	10.0	12.5	19.0	13.5	---
22	7.0	4.0	5.0	8.0	3.0	5.5	14.0	10.0	11.5	17.5	13.5	---
23	7.0	4.5	5.5	8.0	5.0	6.5	15.5	10.0	13.0	14.5	10.5	12.5
24	6.5	3.5	5.0	8.0	4.5	6.0	17.0	12.0	14.0	---	9.5	---
25	6.5	4.0	5.0	8.0	4.0	6.0	17.0	11.5	14.0	10.5	7.0	8.5
26	8.0	5.0	6.5	8.0	4.0	6.0	16.5	10.5	13.5	---	6.5	---
27	9.5	6.0	8.0	8.0	5.5	6.5	17.0	11.0	13.5	12.5	9.0	---
28	8.0	6.0	7.0	9.0	5.0	7.0	17.5	11.0	14.5	---	10.5	---
29	8.0	5.5	6.5	9.5	6.0	7.5	15.5	12.0	14.0	13.0	---	---
30	---	---	---	7.0	3.5	5.5	12.0	9.5	10.0	---	---	---
31	---	---	---	7.0	2.5	4.5	---	---	---	---	10.0	---
MONTH	9.5	.0	2.5	9.5	1.5	5.0	17.5	3.0	10.5	19.0	6.5	12.0

06023000 RUBY RIVER NEAR TWIN BRIDGES, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN	MAX	MIN AUGUST	MEAN	MAX	MIN SEPTEMBER	MEAN
1	---	---		14.5	---	---	21.0	19.0	20.0	16.0	14.5	15.5
2	12.5	10.5		16.0	14.0	15.0	21.0	19.0	20.0	16.0	15.5	15.5
3	---	9.5		15.5	14.5	15.0	20.5	19.0	19.5	16.0	14.5	15.0
4	---	---		15.5	14.0	15.0	19.0	16.5	18.0	16.0	14.5	15.5
5	---	---		15.5	14.0	15.0	19.5	17.0	18.0	16.5	15.0	15.5
6	---	10.0		16.0	14.0	15.0	19.0	17.0	18.5	17.0	16.0	16.5
7	---	---		17.0	15.0	16.0	19.5	17.0	18.0	17.5	16.5	17.0
8	---	---		16.5	15.5	16.0	19.5	17.5	18.5	17.5	16.5	16.5
9	---	---		16.5	14.5	15.5	20.0	17.5	18.5	16.5	15.5	16.0
10	---	13.0		16.5	15.5	16.0	20.0	17.5	19.0	16.5	15.5	16.0
11	---	---		16.5	15.0	16.0	20.0	18.0	19.0	16.0	15.0	15.5
12	---	---		16.5	15.0	15.5	20.0	18.0	19.0	16.0	14.5	15.0
13	---	---		15.5	14.0	15.0	20.0	18.0	19.0	16.0	15.0	15.5
14	---	---		15.5	14.0	14.5	20.5	18.0	19.5	15.5	14.0	15.0
15	---	11.5		17.5	13.0	---	20.0	18.5	19.0	15.5	15.0	15.0
16	---	---		18.5	16.5	17.5	19.5	17.5	18.5	15.0	13.5	14.0
17	---	---		19.5	17.5	18.5	19.5	18.0	19.0	15.5	14.0	14.5
18	---	---		19.0	17.5	18.5	19.0	17.0	18.0	15.0	14.0	14.5
19	---	---		19.0	17.5	18.5	17.0	15.5	16.5	14.5	13.5	14.0
20	16.0	---		20.0	17.5	18.5	18.0	16.0	17.0	14.0	13.0	13.0
21	---	---		20.5	18.0	19.5	18.5	16.5	17.5	13.0	12.5	12.5
22	16.0	---		21.5	19.5	20.5	18.0	16.5	17.0	12.5	11.5	12.0
23	15.0	---		21.5	20.0	20.5	18.0	16.0	16.5	12.5	12.0	12.0
24	---	---		21.0	19.0	20.0	18.0	16.5	17.5	12.5	11.5	12.0
25	---	---		21.5	19.0	20.5	18.0	16.5	17.0	12.5	11.0	11.5
26	---	---		21.5	19.5	20.5	18.0	16.5	17.0	12.5	11.0	12.0
27	15.5	---		21.5	19.0	20.5	18.0	17.0	17.5	13.5	11.5	12.5
28	14.5	---		21.5	19.0	20.5	17.0	15.5	16.0	13.0	12.0	12.5
29	15.5	---		21.5	20.0	20.5	16.5	14.5	15.5	12.5	11.5	12.0
30	---	14.0		21.0	19.0	20.0	16.0	15.0	15.5	13.0	11.5	12.0
31	---	---		20.0	18.5	19.5	16.0	15.0	15.5	---	---	---
MONTH	16.0	9.5		21.5	13.0	17.5	21.0	14.5	18.0	17.5	11.0	14.0
YEAR	21.5	.0	9.0									

06024580 BIG HOLE RIVER NEAR WISE RIVER, MT

LOCATION.--Lat 45°51'04", long 113°04'06", in SE¼SE¼NE¼ sec.10, T.1 N., R.12 W., Silver Bow County, Hydrologic Unit 10020004, on left bank 5 ft (1.5 m) downstream from bridge on State Highway 43, 0.4 mi (0.6 km) upstream of Tie Creek, 7 mi (11 km) northwest of Wise River, MT, and at mile 73.7 (118.6 km).

DRAINAGE AREA.--1,611 mi^2 (4,172 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,700 ft (1,737 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversions for irrigation of about 114,800 acres (465 km^2) above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 5,100 ft^3/s (144 m^3/s) May 10, 1980, gage height, 5.91 ft (1.801 m); maximum gage height, 6.76 ft (2.060 m), occurred sometime during period Apr. 15-21, 1980 (backwater from ice), from floodmarks; minimum daily discharge, 80 ft^3/s (2.27 m^2/s) Jan. 28, 1980, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 5,100 ft^3/s (144 m^3/s) May 10, gage height, 5.91 ft (1.801 m); maximum gage height, 6.76 ft (2.060 m), occurred sometime during period Apr. 15-21 (backwater from ice), from floodmarks; minimum daily discharge, 80 ft^3/s (2.27 m^3/s) Jan. 28.

DISCHARGES, IN CUBIC FEET PER SECOND, JUNE TO SEPTEMBER 1979

DAY	JUNE	JULY	AUG	SEPT	DAY	JUNE	JULY	AUG	SEPT	DAY	JUNE	JULY	AUG	SEPT
1	2850	816	225	207	11	1420	342	150	115	21	1800	221	216	107
2	2500	767	203	201	12	1420	309	147	117	22	1670	216	239	106
3	2200	680	191	187	13	1500	292	157	117	23	1610	292	227	103
4	2300	643	183	176	14	1550	281	199	115	24	1460	298	252	101
5	2400	572	175	160	15	1500	259	216	114	25	1380	292	241	101
6	2500	520	164	150	16	1400	243	221	116	26	1200	254	225	104
7	2200	495	154	145	17	1300	234	179	116	27	1120	239	231	106
8	2000	439	147	136	18	1500	239	177	113	28	1060	239	224	106
9	1800	408	164	127	19	1830	234	181	109	29	909	276	212	106
10	1600	364	157	118	20	2000	230	192	107	30	837	276	203	108
										31	---	254	209	---

	JUNE	JULY	AUG	SEPT
TOTAL	50816	11224	6061	3794
MEAN	1694	362	196	126
MAX	2850	816	252	207
MIN	837	216	147	101
AC-FT	100800	22260	12020	7530

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	107	180	160	110	210	205	250	2870	2870	1440	589	221
2	103	160	190	140	250	210	245	2560	3630	1490	554	227
3	107	180	220	180	270	195	240	2720	4530	2180	463	245
4	105	185	240	170	250	150	260	2780	4530	2720	416	242
5	104	186	220	180	220	130	270	2850	4180	2740	378	222
6	106	190	210	140	240	140	285	2980	3390	2020	356	206
7	105	192	220	100	250	160	280	3290	3040	1550	329	191
8	106	189	230	85	240	180	270	4010	2800	1550	309	198
9	107	180	240	100	230	210	280	4550	2570	1560	295	204
10	111	185	220	120	210	215	270	4990	2590	1440	286	213
11	111	188	180	110	190	215	280	4940	2830	1210	275	416
12	112	145	170	150	180	210	280	4200	3080	1060	263	512
13	114	140	180	200	170	210	310	3120	3510	1060	269	439
14	116	150	200	240	150	220	370	2780	3470	1090	266	378
15	123	140	200	250	130	230	440	2530	4400	1060	262	323
16	139	160	160	220	110	210	490	2590	4420	984	278	293
17	142	190	210	210	120	190	600	2910	3690	837	269	273
18	142	220	200	190	140	250	800	2670	3120	757	268	259
19	171	210	190	160	160	240	1700	2360	2960	747	312	290
20	192	150	200	140	170	240	2400	2430	2870	690	319	302
21	195	110	190	150	180	260	3250	2700	2680	662	305	346
22	193	100	200	145	190	250	3430	2870	2540	607	287	338
23	194	110	180	160	170	260	3020	3550	2870	598	288	332
24	198	125	160	180	160	250	2890	3940	3530	570	274	331
25	197	140	180	150	200	250	3120	4240	3100	537	250	305
26	205	150	170	110	225	240	2960	4510	2430	487	246	293
27	202	160	140	85	220	270	2870	4530	2160	447	255	281
28	202	140	110	80	215	235	2680	3960	1720	431	247	268
29	198	130	100	100	210	255	2560	3430	1480	424	233	257
30	194	150	95	130	---	250	3160	3100	1420	371	224	243
31	190	---	95	170	---	245	---	2940	---	408	218	---
TOTAL	4591	4835	5660	4655	5660	6775	40260	103900	92410	33727	9583	8648
MEAN	148	161	183	150	195	219	1342	3352	3080	1088	309	288
MAX	205	220	240	250	270	270	3430	4990	4530	2740	589	512
MIN	103	100	95	80	110	130	240	2360	1420	371	218	191
AC-FT	9110	9590	11230	9230	11230	13440	79860	206100	183300	66900	19010	17150

WTR YR 1980 TOTAL 320704 MEAN 876 MAX 4990 MIN 80 AC-FT 636100

06024580 BIG HOLE RIVER NEAR WISE RIVER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August 1979 to current year.

INSTRUMENTATION.--Temperature recorder since August 21, 1979.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 23.0°C July 22, 1980; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 23.0°C July 22; minimum, 0.0°C on many days during November to April.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	13.5	6.0	10.0	2.0	1.0	1.5	.0	.0	.0	.0	.0	.0
2	14.5	8.5	10.5	1.5	1.0	1.0	.0	.0	.0	.0	.0	.0
3	13.0	5.0	9.0	2.0	1.0	1.5	.0	.0	.0	.0	.0	.0
4	13.5	4.5	9.0	2.0	1.0	1.5	.0	.0	.0	.0	.0	.0
5	14.0	6.5	10.0	3.5	1.0	2.0	.0	.0	.0	.0	.0	.0
6	14.5	6.0	10.5	3.5	1.0	2.0	.0	.0	.0	.0	.0	.0
7	15.0	7.5	11.0	2.0	1.0	1.0	.0	.0	.0	.0	.0	.0
8	13.0	7.5	10.0	2.5	1.0	1.5	.0	.0	.0	.0	.0	.0
9	12.0	5.5	8.5	---	---	---	.0	.0	.0	.0	.0	.0
10	13.0	4.5	8.5	---	---	---	.0	.0	.0	.0	.0	.0
11	14.0	6.5	10.0	---	---	---	.0	.0	.0	.0	.0	.0
12	13.0	6.0	9.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	12.5	5.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	11.0	6.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	9.5	7.5	8.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	10.5	6.5	8.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	8.0	5.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	5.5	2.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	7.5	5.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	5.0	3.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	6.0	2.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	5.5	2.0	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	7.5	4.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	8.5	5.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	8.5	5.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	7.5	4.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	6.0	2.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	6.0	3.5	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	4.5	2.5	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	4.0	1.0	2.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	2.5	1.0	1.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	15.0	1.0	7.0	3.5	.0	.5	.0	.0	.0	.0	.0	.0

06024580 BIG HOLE RIVER NEAR WISE RIVER, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

	FEBRUARY			MARCH			APRIL			MAY		
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	.0	.0	.0	.0	.0	.0	.0	.0	.0	10.0	4.0	7.0
2	.0	.0	.0	.0	.0	.0	.0	.0	.0	10.5	5.0	8.0
3	.0	.0	.0	.0	.0	.0	.0	.0	.0	10.5	7.0	9.0
4	.0	.0	.0	.0	.0	.0	.0	.0	.0	12.0	6.0	9.0
5	.0	.0	.0	.0	.0	.0	.0	.0	.0	12.5	6.5	9.5
6	.0	.0	.0	.0	.0	.0	.0	.0	.0	10.5	7.5	9.0
7	.0	.0	.0	.0	.0	.0	.0	.0	.0	9.0	7.5	8.0
8	.0	.0	.0	.0	.0	.0	.0	.0	.0	8.5	6.5	7.5
9	.0	.0	.0	.0	.0	.0	.0	.0	.0	8.5	7.0	8.0
10	.0	.0	.0	.0	.0	.0	.0	.0	.0	8.0	5.5	6.0
11	.0	.0	.0	.0	.0	.0	.0	.0	.0	7.0	4.5	6.0
12	.0	.0	.0	.0	.0	.0	.0	.0	.0	9.5	5.5	7.5
13	.0	.0	.0	.0	.0	.0	.0	.0	.0	8.5	7.0	8.0
14	.0	.0	.0	.0	.0	.0	.0	.0	.0	10.5	6.5	8.0
15	.0	.0	.0	.0	.0	.0	.0	.0	.0	10.5	7.0	8.5
16	.0	.0	.0	.0	.0	.0	.0	.0	.0	9.5	7.5	8.5
17	.0	.0	.0	.0	.0	.0	.0	.0	.0	12.0	7.5	9.5
18	.0	.0	.0	.0	.0	.0	.0	.0	.0	13.0	8.0	10.5
19	.0	.0	.0	.0	.0	.0	.5	.0	.0	13.0	10.0	11.5
20	.0	.0	.0	.0	.0	.0	1.5	.0	---	14.5	9.0	11.5
21	.0	.0	.0	.0	.0	.0	3.0	.0	---	14.0	8.5	11.5
22	.0	.0	.0	.0	.0	.0	6.0	3.0	4.0	12.5	9.5	11.0
23	.0	.0	.0	.0	.0	.0	6.0	3.5	4.5	10.5	6.5	8.5
24	.0	.0	.0	.0	.0	.0	7.5	3.5	5.0	8.0	5.5	6.5
25	.0	.0	.0	.0	.0	.0	8.5	3.5	5.5	7.5	4.5	6.5
26	.0	.0	.0	.0	.0	.0	9.5	3.5	6.5	7.0	3.0	5.0
27	.0	.0	.0	.0	.0	.0	10.0	4.5	7.0	8.5	6.0	7.5
28	.0	.0	.0	.0	.0	.0	10.5	5.0	8.0	10.5	7.0	8.5
29	.0	.0	.0	.0	.0	.0	8.5	6.0	7.5	10.0	7.5	9.0
30	---	---	---	.0	.0	.0	6.0	4.0	4.5	10.5	8.0	9.5
31	---	---	---	.0	.0	.0	---	---	---	11.5	8.5	10.0
MONTH	.0	.0	.0	.0	.0	.0	10.5	.0	2.0	14.5	3.0	8.5
	JUNE			JULY			AUGUST			SEPTEMBER		
1	10.5	9.0	10.0	17.5	12.5	15.0	20.0	15.0	17.5	16.0	8.5	12.0
2	10.0	7.5	9.0	18.0	13.0	15.5	21.0	14.5	18.0	15.0	10.0	12.0
3	10.5	7.0	9.0	16.5	13.5	15.0	19.0	13.0	16.0	15.5	8.5	12.0
4	12.0	9.0	10.5	18.0	12.5	15.0	19.0	10.0	14.0	16.0	8.0	12.0
5	12.0	9.5	11.0	19.0	14.5	16.5	20.0	11.5	15.5	17.0	8.5	12.5
6	12.0	8.5	10.5	19.5	14.5	17.0	20.0	12.5	16.5	15.5	10.5	13.5
7	11.5	8.5	10.5	19.0	15.0	17.0	20.0	12.0	16.0	16.5	11.5	13.5
8	14.0	9.0	11.5	18.0	15.0	17.0	20.5	12.5	16.5	14.5	12.0	13.0
9	15.0	11.5	13.5	18.5	14.5	16.5	21.0	13.0	17.0	18.0	10.0	13.5
10	14.0	11.5	13.0	19.5	15.0	17.0	21.5	12.5	17.0	15.0	12.0	13.5
11	14.5	10.5	12.5	19.5	14.5	17.0	20.0	13.0	17.0	13.5	11.5	12.5
12	13.0	10.0	11.5	19.0	15.0	17.0	20.0	13.0	16.5	13.5	10.0	12.0
13	14.0	8.5	11.0	18.0	15.0	16.0	20.0	12.5	16.5	13.5	11.0	12.5
14	12.5	11.0	12.0	15.5	13.0	14.0	21.0	13.5	17.0	16.5	11.0	13.5
15	11.5	9.5	10.5	17.0	12.0	14.0	19.0	14.0	16.5	15.5	12.0	13.5
16	14.5	11.0	12.5	19.5	13.0	16.0	21.0	13.0	17.0	15.0	9.5	12.0
17	17.0	12.5	14.5	19.5	15.0	17.5	20.0	13.5	16.5	15.5	9.0	12.0
18	16.5	13.0	15.0	18.5	14.0	16.5	16.0	12.5	14.5	11.5	9.0	10.0
19	18.0	12.5	15.0	19.0	14.5	17.0	14.5	9.5	12.0	12.0	8.0	9.5
20	16.5	12.5	14.5	20.5	15.0	17.5	17.0	9.5	13.0	11.5	8.0	9.5
21	17.5	12.0	15.0	21.5	15.0	18.5	18.0	10.0	14.0	10.5	6.5	8.5
22	17.5	13.0	15.0	23.0	17.0	20.0	16.0	11.5	13.5	9.0	5.5	7.5
23	15.5	11.5	13.0	22.5	17.0	19.5	18.5	10.0	14.0	10.0	7.0	8.0
24	15.0	10.0	12.5	22.0	17.0	19.5	19.0	10.5	15.0	11.0	6.0	8.5
25	16.0	12.5	14.5	22.5	16.5	19.5	19.0	11.5	15.0	11.5	5.5	8.5
26	17.0	13.0	15.0	22.0	16.0	19.0	19.5	13.0	15.5	12.5	6.0	9.0
27	14.0	10.5	12.0	22.0	15.5	19.0	19.0	12.5	15.0	13.5	7.0	10.5
28	17.0	10.0	13.5	22.5	15.5	19.0	17.0	10.0	13.0	12.0	8.0	10.0
29	18.5	11.5	15.0	---	16.5	---	17.0	9.5	13.0	13.0	7.0	10.0
30	16.0	14.0	15.0	---	---	---	15.5	8.5	12.0	13.5	7.5	10.0
31	---	---	---	---	---	---	13.5	9.5	11.0	---	---	---
MONTH	18.5	7.0	12.5	23.0	12.0	17.0	21.5	8.5	15.0	18.0	5.5	11.0
YEAR	23.0	.0	6.0									

06024590 WISE RIVER NEAR WISE RIVER, MT

LOCATION (REVISED).--Lat 45°42'17", long 113°01'50", in SE¼NE¼SW¼ sec.36, T.1 S., R.12 W., Beaverhead County, Beaverhead National Forest, Hydrologic Unit 10020004, on left bank 6 ft (2 m) downstream from bridge on old county road, 6.5 mi (10.5 km) southwest of Wise River, and at mile 9.1 (14.6 km).

DRAINAGE AREA.--214 mi^2 (544 km^2).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 6,112.52 ft (1,863.096 m) National Geodetic Vertical Datum of 1929 (from U.S. Forest Service bench mark).

REMARKS.--Records good except those for winter period, which are poor. Minor diversions for irrigation above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--8 years, 187 ft^3/s (5.296 m^3/s), 135,500 acre-ft/yr (167 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,730 ft^3/s (77.3 m^3/s) June 16, 1974, gage height, 8.43 ft (2.569 m); minimum, 13 ft^3/s (0.37 m^3/s) Nov. 28, 1976, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 14, 1927, when Wise River Reservoir dam failed, exceeded all other known floods at this location.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft^3/s (19.8 m^3/s), revised, and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 8	1330	1,010	28.6	5.42	1.652	June 3	0500	963	27.3	5.31	1.618
May 24	0100	*1,490	42.2	*6.39	1.948	June 13	0600	1,170	33.1	5.75	1.753

Minimum daily discharge, 25 ft^3/s (0.71 m^3/s) Jan. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	38	34	36	32	34	32	434	752	402	113	62
2	43	35	35	36	34	35	32	499	846	402	104	62
3	43	41	37	36	35	35	32	510	910	412	101	69
4	43	42	38	34	35	33	32	568	834	506	101	68
5	43	42	38	35	34	31	32	626	772	405	96	63
6	43	41	38	32	35	32	32	674	797	335	93	61
7	43	38	38	33	35	33	31	826	768	301	88	61
8	43	39	38	32	35	33	32	982	729	277	85	70
9	43	36	39	34	35	34	32	949	809	271	83	69
10	43	40	38	35	35	34	32	867	945	249	80	68
11	44	39	35	34	35	33	33	665	1070	227	79	125
12	43	35	36	35	35	32	32	540	1110	214	77	160
13	43	36	37	36	34	33	35	498	1090	212	76	112
14	43	35	38	36	32	33	39	473	927	204	74	127
15	44	34	37	36	33	32	44	452	967	209	76	110
16	48	36	37	36	34	33	43	524	914	190	79	96
17	48	40	37	35	35	36	53	576	850	173	73	89
18	47	39	37	34	35	33	66	570	867	164	73	84
19	50	38	37	33	35	32	80	606	850	156	80	95
20	52	33	37	34	35	32	101	736	817	147	74	97
21	48	30	37	35	35	32	125	910	809	141	67	95
22	45	30	37	35	35	32	173	1030	752	133	62	91
23	47	33	35	35	34	32	197	1250	756	127	67	88
24	49	35	36	35	34	32	252	1250	801	123	63	94
25	49	36	37	32	35	34	344	1000	622	119	59	87
26	51	35	36	28	35	36	452	850	554	115	64	81
27	50	35	35	25	36	33	402	793	523	110	67	78
28	49	33	34	26	36	34	409	784	456	106	69	75
29	47	31	34	27	35	33	456	752	405	104	66	73
30	41	32	34	29	---	32	499	721	385	101	63	72
31	36	---	35	30	---	32	---	744	---	108	62	---
TOTAL	1404	1087	1131	1029	1003	1025	4154	22659	23687	6743	2414	2582
MEAN	45.3	36.2	36.5	33.2	34.6	33.1	138	731	790	218	77.9	86.1
MAX	52	42	39	36	36	36	499	1250	1110	506	113	160
MIN	36	30	34	25	32	31	31	434	385	101	59	61
AC-FT	2780	2160	2240	2040	1990	2030	8240	44940	46980	13370	4790	5120

CAL YR 1979 TOTAL 61715 MEAN 169 MAX 1730 MIN 30 AC-FT 122400
WTR YR 1980 TOTAL 68918 MEAN 188 MAX 1250 MIN 25 AC-FT 136700

06025500 BIG HOLE RIVER NEAR MELROSE, MT

LOCATION.--Lat 45°31'36", long 112°42'03", in SE¼SE¼SW¼ sec.34, T.3 S., R.9 W., Madison County, Hydrologic Unit 10020004, on left bank 50 ft (15.2 m) downstream from bridge, revised, on Interstate Highway 15 and U.S. Highway 91, 0.1 mi (0.2 km) downstream from Rock Creek, and 7 mi (11 km) south of Melrose.

DRAINAGE AREA.--2,476 mi^2 (6,413 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1923 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 5,032.87 ft (1,534.018 m) National Geodetic Vertical Datum of 1929. Prior to June 14, 1927, water-stage recorder, and July 17, 1927, to Sept. 30, 1931, nonrecording gage, at site 1.7 mi (2.7 km) upstream at different datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversions for irrigation of about 136,000 acres (550 km^2) above station.

AVERAGE DISCHARGE.--57 years, 1,162 ft^3/s (32.91 m^3/s), 841,900 acre-ft/yr (1.04 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft^3/s (651 m^3/s) June 14, 1927, when Wise River Reservoir dam failed (gage height, 14.0 ft or 4.27 m, from floodmark, site and datum then in use), from rating curve extended above 8,000 ft^3/s (227 m^3/s); maximum discharge unaffected by dam failure, 14,300 ft^3/s (405 m^3/s) June 10, 1972, gage height, 8.04 ft (2.451 m); minimum observed, 49 ft^3/s (1.39 m^3/s) Aug. 17, 1931, gage height, 0.70 ft (0.213 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,610 ft^3/s (187 m^3/s) May 10, gage height, 5.37 ft (1.637 m); minimum daily, 130 ft^3/s (3.68 m^3/s) Jan. 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	257	390	280	190	260	331	328	3770	4090	2240	700	410
2	257	369	320	220	300	339	325	3590	4680	2270	799	409
3	253	352	360	250	330	339	318	3600	5930	2560	710	411
4	257	425	384	230	310	290	335	3810	6180	3640	657	400
5	257	431	357	250	270	240	341	3860	5730	3700	617	391
6	257	424	344	200	290	250	362	4010	4950	3100	574	375
7	270	415	358	160	310	270	357	4320	4500	2440	536	368
8	279	397	365	140	290	300	343	5210	4170	2240	503	401
9	270	389	377	160	290	330	357	5840	3940	2270	465	391
10	279	364	381	180	270	336	353	6360	4010	2180	441	406
11	292	396	303	160	250	339	369	6410	4340	1900	418	628
12	310	366	301	200	240	333	362	5500	4650	1680	387	885
13	310	300	312	250	230	331	395	4130	5130	1600	376	849
14	310	316	338	290	210	341	455	3640	5010	1610	393	815
15	320	308	337	310	190	338	549	3360	5700	1580	449	725
16	339	292	280	280	170	300	636	3340	6080	1490	439	657
17	364	358	357	260	190	280	774	3730	5380	1360	434	613
18	369	414	348	250	210	340	1090	3630	4680	1250	426	572
19	385	389	325	210	260	324	1760	3300	4400	1170	453	579
20	434	318	341	190	290	317	2630	3330	4270	1110	490	606
21	464	220	328	200	310	334	3930	3690	4180	1060	489	635
22	464	180	332	190	330	331	4100	4030	3970	994	480	664
23	458	200	300	210	310	340	3850	4910	3960	961	449	657
24	470	220	280	230	290	325	3500	5820	5020	929	435	649
25	482	240	320	200	330	333	3720	5740	4470	867	420	642
26	476	260	309	160	360	321	3900	5890	3750	805	437	613
27	482	260	260	130	358	347	3700	5990	3300	761	425	592
28	475	240	220	130	342	313	3510	5420	2800	722	437	572
29	466	220	190	150	343	333	3470	4780	2420	679	422	552
30	452	240	170	180	---	336	3910	4320	2210	648	409	532
31	419	---	170	220	---	320	---	4180	---	638	408	---
TOTAL	11177	9693	9647	6380	8133	9901	50029	139510	133900	50454	15078	16999
MEAN	361	323	311	206	280	319	1668	4500	4463	1628	486	567
MAX	482	431	384	310	360	347	4100	6410	6180	3700	799	885
MIN	253	180	170	130	170	240	318	3300	2210	638	376	368
AC-FT	22170	19230	19130	12650	16130	19640	99230	276700	265600	100100	29910	33720

CAL YR 1979 TOTAL 350169 MEAN 959 MAX 7230 MIN 170 AC-FT 694600
WTR YR 1980 TOTAL 460901 MEAN 1259 MAX 6410 MIN 130 AC-FT 914200

06025500 BIG HOLE RIVER NEAR MELROSE, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1956-57, 1960-64, 1977 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1977 to current year.

INSTRUMENTATION.--Temperature recorder since June 22, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 22.5°C July 22, 1980; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 22.5°C July 22; minimum, 0.0°C on many days during November to February.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN OCTOBER	MEAN	MAX	MIN NOVEMBER	MEAN	MAX	MIN DECEMBER	MEAN	MAX	MIN JANUARY	MEAN
1	14.0	9.5	12.0	3.5	1.0	2.0	.0	.0	.0	.0	.0	.0
2	14.0	10.5	12.0	2.5	.5	1.5	1.0	.0	.5	.0	.0	.0
3	12.5	8.5	10.5	3.5	2.0	2.5	.5	.5	.5	.0	.0	.0
4	13.0	8.0	10.5	4.0	3.0	3.5	.5	.5	.5	.0	.0	.0
5	14.0	9.5	11.5	3.5	2.5	3.0	.5	.5	.5	.0	.0	.0
6	14.5	10.0	12.0	4.0	1.5	3.0	1.0	.5	.5	.0	.0	.0
7	14.5	11.0	13.0	3.5	1.0	2.5	1.0	.5	1.0	.0	.0	.0
8	13.0	10.0	11.5	3.5	1.5	2.0	1.5	.5	1.0	.0	.0	.0
9	11.0	8.0	9.5	2.0	.5	1.5	1.5	.5	1.0	.0	.0	.0
10	12.5	7.5	10.0	3.0	1.0	2.0	1.5	.5	1.0	.0	.0	.0
11	13.5	9.0	11.5	3.0	1.0	2.0	.5	.5	.5	.0	.0	.0
12	13.0	9.5	11.0	2.5	.5	1.0	.5	.5	.5	.0	.0	.0
13	12.5	8.5	11.0	1.5	.5	1.0	.5	.5	.5	.0	.0	.0
14	11.0	9.5	10.5	1.0	.5	.5	.5	.5	.5	.0	.0	.0
15	10.5	9.0	9.5	1.0	.5	.5	.5	.5	.5	.0	.0	.0
16	10.5	7.5	9.5	1.5	.5	.5	.5	.5	.5	.0	.0	.0
17	9.5	7.5	8.5	2.5	1.5	2.0	.5	.5	.5	.0	.0	.0
18	7.5	5.0	6.5	2.5	1.5	2.0	.5	.5	.5	.0	.0	.0
19	8.0	6.5	7.0	2.0	.5	1.5	.5	.5	.5	.0	.0	.0
20	6.5	5.5	6.0	.0	.0	.0	.5	.0	.0	.0	.0	.0
21	7.0	5.0	6.0	.0	.0	.0	.5	.5	.5	.0	.0	.0
22	6.0	4.0	5.0	.0	.0	.0	.5	.5	.5	.0	.0	.0
23	7.0	5.0	6.0	.0	.0	.0	.5	.0	.5	.0	.0	.0
24	8.5	5.5	7.0	.0	.0	.0	.5	.0	.5	.0	.0	.0
25	8.5	6.5	7.5	.0	.0	.0	.5	.5	.5	.0	.0	.0
26	8.0	6.0	7.0	.0	.0	.0	.5	.0	.5	.0	.0	.0
27	6.5	4.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	7.0	5.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	5.0	3.5	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	4.5	2.5	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	3.5	1.0	2.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	14.5	1.0	8.5	4.0	.0	1.0	1.5	.0	.5	.0	.0	.0

BIG HOLE RIVER BASIN

06025500 BIG HOLE RIVER NEAR MELROSE, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	.0	.0	.0	3.0	.5	1.5	5.5	1.5	3.5	10.0	5.0	---
2	.0	.0	.0	2.5	.5	1.5	5.5	2.0	4.0	---	8.0	---
3	.0	.0	.0	2.5	.5	1.5	7.0	1.5	4.0	11.0	9.5	10.0
4	.0	.0	.0	1.0	.5	.5	7.0	2.5	4.5	12.5	9.0	---
5	.0	.0	.0	.5	.5	.5	7.5	4.0	---	12.5	10.0	---
6	.0	.0	.0	1.0	.5	.5	6.5	4.0	5.0	12.0	10.5	---
7	.0	.0	.0	2.5	.5	1.5	6.5	2.0	4.0	10.5	9.0	10.0
8	.0	.0	.0	3.5	.5	2.0	7.0	2.0	4.5	9.0	8.0	8.5
9	.0	.0	.0	4.0	.5	2.5	6.0	3.5	4.5	9.5	8.5	9.0
10	.0	.0	.0	5.5	2.0	3.5	5.0	1.5	3.5	9.0	6.0	7.5
11	.0	.0	.0	4.0	2.0	3.0	7.5	3.0	5.0	6.5	5.5	6.0
12	.0	.0	.0	4.0	.5	2.0	9.0	2.5	5.5	8.5	6.0	7.5
13	.0	.0	.0	3.5	.5	2.0	10.5	4.0	7.0	9.5	7.5	---
14	.0	.0	.0	5.0	1.5	3.5	10.5	5.0	---	11.0	7.0	9.0
15	.0	.0	.0	4.5	1.5	2.5	9.0	5.5	---	11.0	8.5	---
16	.0	.0	.0	---	.5	---	9.0	3.5	6.0	10.5	9.0	9.5
17	.0	.0	.0	4.0	.5	2.0	9.5	4.5	7.0	11.5	9.0	10.0
18	.0	.0	.0	4.5	1.5	---	8.5	5.0	6.5	---	9.5	---
19	.0	.0	.0	6.5	2.0	4.0	6.5	3.0	5.0	13.5	11.5	---
20	.0	.0	.0	5.5	1.5	3.5	6.5	.5	4.0	---	11.0	---
21	.0	.0	.0	5.5	3.0	4.0	5.0	1.0	3.5	---	12.0	---
22	.5	.0	.5	6.5	1.5	4.0	6.0	2.5	4.5	---	12.5	---
23	.5	.5	.5	7.0	3.0	---	8.5	5.5	7.0	12.0	8.0	10.5
24	.5	.5	.5	5.0	1.5	3.5	9.0	6.0	---	8.0	7.0	7.0
25	.5	.5	.5	4.5	1.0	3.0	9.5	7.0	8.5	7.5	6.5	7.5
26	.5	.5	.5	4.5	1.0	3.0	---	7.0	---	6.0	5.5	5.5
27	.5	.5	.5	6.5	2.5	4.0	11.0	8.0	---	---	6.0	---
28	1.0	.5	.5	7.0	2.0	4.5	---	8.0	---	10.0	8.0	9.0
29	1.5	.5	1.0	6.5	3.0	5.0	10.5	9.0	10.0	---	9.0	---
30	---	---	---	5.0	1.5	3.0	9.0	5.5	7.0	---	9.0	---
31	---	---	---	5.0	.5	2.5	---	---	---	11.0	9.5	10.5
MONTH	1.5	.0	.0	7.0	.5	2.5	11.0	.5	5.5	13.5	5.0	8.5

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	11.5	9.5	---	16.0	13.5	---	20.0	15.5	---	---	---	---
2	10.5	9.0	9.5	17.5	14.0	---	20.5	15.5	---	---	---	---
3	10.0	8.0	9.0	16.5	15.0	---	18.5	15.5	---	15.0	10.5	---
4	---	9.0	---	17.0	14.0	---	18.5	14.5	---	---	10.0	---
5	12.0	10.0	---	17.5	15.0	---	19.5	---	---	---	10.5	---
6	11.0	9.5	---	18.5	15.5	---	19.0	---	---	---	12.5	---
7	11.5	9.5	---	18.5	16.5	---	20.0	---	---	---	13.5	---
8	13.5	9.5	---	18.0	16.5	---	19.5	14.5	---	15.0	13.5	---
9	15.0	12.0	---	18.5	15.5	---	20.0	14.5	---	---	11.5	---
10	15.0	12.5	---	19.0	15.5	---	20.0	15.0	---	---	13.5	---
11	14.0	13.0	---	18.5	15.0	---	20.0	15.0	---	15.5	13.0	---
12	13.0	11.0	---	18.5	15.5	---	19.5	15.0	---	15.5	12.0	---
13	13.0	9.5	---	18.0	15.0	---	19.5	15.0	---	14.0	12.0	---
14	13.0	11.5	---	16.0	13.5	---	20.0	15.5	---	15.5	11.5	---
15	12.5	9.0	---	17.0	12.0	---	18.0	15.0	---	---	---	---
16	14.5	9.0	---	18.0	13.5	---	19.5	15.0	---	---	---	---
17	16.5	13.5	---	18.5	15.0	---	18.5	15.0	---	---	---	---
18	16.5	15.0	---	18.0	14.5	---	17.5	---	---	---	---	---
19	16.5	14.5	---	18.0	15.0	---	---	---	---	13.0	---	---
20	16.5	14.5	---	19.5	14.5	---	17.5	---	---	12.0	---	---
21	16.0	14.0	---	21.0	15.5	---	18.0	---	---	11.0	8.5	---
22	16.0	15.0	---	22.5	17.0	---	---	---	---	11.0	7.5	---
23	16.0	13.5	---	20.0	---	---	---	---	---	---	9.0	---
24	13.5	10.5	---	20.5	17.0	---	---	---	---	12.5	8.0	---
25	16.0	13.0	---	20.5	17.0	---	---	---	---	---	8.0	---
26	16.0	14.5	---	20.0	16.5	---	18.5	---	---	---	---	---
27	15.0	12.5	---	20.5	15.5	---	18.0	---	---	---	---	---
28	15.0	11.0	---	20.5	16.0	---	---	---	---	13.5	10.0	---
29	16.5	13.0	---	20.5	17.0	---	---	---	---	13.0	---	---
30	16.0	14.0	---	19.5	16.0	---	---	---	---	14.0	10.0	---
31	---	---	---	19.5	15.5	---	---	---	---	---	---	---
MONTH	16.5	8.0	9.5	22.5	12.0	---	20.5	14.5	---	15.5	7.5	---
YEAR	22.5	.0	3.0									

06026400 BIG HOLE RIVER NEAR TWIN BRIDGES, MT

LOCATION.--Lat 45°32'50", long 112°21'59", in SW¼NW¼SE¼ sec.29, T.3 S., R.6 W., Madison County, Hydrologic Unit 10020004, on left bank, 0.4 mi (0.6 km) upstream of bridge on secondary highway 361, 0.4 mi (0.6 km) above Rochester Creek, 1.8 mi (2.9 km) west of Twin Bridges, MT, and at mile 2.8 (4.5 km).

DRAINAGE AREA.--2,762 mi^2 (7,154 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1979 to September 1980.

GAGE.--Water-stage recorder. Altitude of gage is 4,680 ft (1,426 m), from topographic map.

REMARKS.--Water-discharge records good except those for Apr. 20 to July 20, which are fair, and those for the winter period, which are poor. Numerous diversions for irrigation above station.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,460 ft^3/s (211 m^3/s) May 11, gage height, 6.59 ft (2.009 m); minimum recorded, 130 ft^3/s (3.68 m^3/s) Oct. 1-3, gage height, 2.36 ft (0.719 m), but may have been less during period of ice effect Jan. 27-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134	378	220	250	220	330	311	3950	4340	1910	372	165
2	134	364	260	270	270	330	306	3610	4590	2000	444	169
3	134	334	330	290	330	330	309	3480	6180	2200	438	165
4	138	362	374	280	320	300	305	3780	6890	3180	410	165
5	141	407	372	290	300	270	320	3850	6770	3590	387	157
6	138	408	374	250	320	300	331	4000	5660	3150	351	161
7	138	404	384	200	340	330	342	4250	5000	2370	317	161
8	145	389	383	150	320	360	338	5130	4530	1920	304	173
9	145	385	382	180	300	390	314	6340	4190	1920	286	165
10	153	357	378	220	300	420	307	6890	4120	1830	268	169
11	165	366	315	200	280	414	309	7430	4440	1620	251	304
12	178	371	301	220	280	403	310	6730	4820	1500	214	588
13	219	327	311	250	260	400	324	4980	5330	1400	200	688
14	230	311	350	290	230	386	361	4040	5450	1350	186	738
15	240	333	330	320	200	382	412	3600	5680	1300	200	680
16	251	339	280	310	170	360	498	3280	6780	1200	230	602
17	265	332	310	310	190	375	574	3630	6200	1100	214	566
18	292	378	390	280	220	330	759	3750	5200	1000	205	580
19	318	398	410	250	260	324	1180	3340	4720	900	214	566
20	332	380	408	220	290	319	2100	3150	4460	800	235	580
21	372	313	381	210	310	318	3300	3460	4420	680	246	595
22	381	210	389	190	330	327	4500	3890	4210	632	246	641
23	391	200	374	200	310	330	4150	4650	3960	602	224	648
24	394	210	349	220	290	327	3460	6500	5000	573	186	625
25	420	220	378	200	330	324	3730	6400	4890	537	173	625
26	420	230	341	170	360	316	4050	6700	4010	503	178	618
27	433	230	323	140	360	320	3850	6650	3350	463	178	610
28	445	220	276	130	340	323	3650	6290	2720	438	173	580
29	431	200	243	140	340	314	3460	5480	2230	410	169	566
30	429	200	210	150	---	319	3750	4780	1940	365	169	544
31	413	---	230	180	---	315	---	4490	---	358	165	---
TOTAL	8419	9556	10356	6960	8370	10586	47910	148500	142080	41801	7833	13594
MEAN	272	319	334	225	289	341	1597	4790	4736	1348	253	453
MAX	445	408	410	320	360	420	4500	7430	6890	3590	444	738
MIN	134	200	210	130	170	270	305	3150	1940	358	165	157
AC-FT	16700	18950	20540	13810	16600	21000	95030	294500	281800	82910	15540	26960

WTR YR 1980 TOTAL 455965 MEAN 1246 MAX 7430 MIN 130 AC-FT 904400

06026400 BIG HOLE RIVER NEAR TWIN BRIDGES, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967, April to September 1980.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: April to September 1980.

INSTRUMENTATION.--Temperature recorder since April 9, 1980.

REMARKS.--Prior to the 1980 water year, temperatures published for site were taken 0.4 mi (0.6 km) downstream. No appreciable inflow or outflow occurs between the sites. Temperatures are considered equivalent.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 24.0°C on July 22, 1980.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY		FEBRUARY			MARCH			APRIL			MAY	
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1							---	---	---	11.0	6.5	9.0
2							---	---	---	13.5	9.0	11.0
3							---	---	---	12.5	9.5	11.0
4							---	---	---	14.0	9.5	12.0
5							---	---	---	15.0	11.0	13.0
6							---	---	---	14.0	11.5	13.0
7							---	---	---	12.0	11.0	11.5
8							---	---	---	11.5	10.0	10.5
9							6.0	---	---	12.0	9.5	10.5
10							6.0	3.0	4.5	10.5	8.5	9.0
11							7.5	4.0	5.5	8.5	7.0	7.5
12							10.5	4.0	7.0	11.0	6.5	8.5
13							12.0	5.5	8.5	11.0	8.0	9.5
14							13.0	7.0	10.0	12.5	9.0	10.5
15							11.5	8.0	9.5	12.5	9.5	11.0
16							11.5	6.5	9.0	11.5	10.5	11.0
17							12.5	7.0	9.5	13.0	9.5	11.5
18							12.0	8.0	10.0	15.0	11.0	13.0
19							11.5	7.5	9.5	16.0	12.5	14.0
20							9.0	6.0	8.0	17.0	12.5	14.5
21							7.5	6.0	6.5	17.5	13.0	15.0
22							7.0	5.5	6.0	17.0	13.5	15.0
23							10.5	6.5	8.5	14.0	11.0	12.5
24							11.5	8.5	10.0	10.5	8.5	9.0
25							12.0	9.0	10.5	8.5	8.0	8.0
26							12.0	8.5	10.5	8.5	7.0	7.5
27							13.0	9.0	11.0	10.5	6.5	8.5
28							13.5	9.0	11.5	11.0	8.0	9.5
29							12.5	10.0	11.5	11.5	9.0	10.5
30							11.0	8.0	9.0	12.0	9.5	10.5
31							---	---	---	12.0	10.0	11.0
MONTH							13.5	3.0	9.0	17.5	6.5	11.0

06026400 BIG HOLE RIVER NEAR TWIN BRIDGES, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.0	10.0	11.5	18.0	14.0	16.0	22.5	17.5	20.0	---	---	---
2	11.5	10.5	11.0	19.0	14.5	16.5	22.5	17.0	20.0	---	---	---
3	11.5	9.0	10.0	18.0	15.5	16.5	21.0	17.0	19.0	---	---	---
4	11.5	9.5	10.5	18.5	14.5	16.5	20.0	14.0	17.0	---	---	---
5	13.0	10.0	11.5	19.0	15.0	17.0	20.5	15.0	17.5	---	---	---
6	12.0	10.5	11.0	20.0	15.5	17.5	20.0	15.0	17.5	---	---	---
7	13.0	10.0	11.5	20.5	16.5	18.5	21.0	15.0	17.5	---	---	---
8	15.0	10.5	12.5	20.0	17.0	18.5	21.5	15.5	18.0	---	---	---
9	16.5	12.5	14.5	20.5	16.0	18.5	21.5	16.0	18.5	---	---	---
10	16.0	14.0	15.0	20.5	16.5	18.5	22.0	16.0	19.0	20.5	12.0	16.0
11	14.5	13.5	14.0	20.5	15.5	18.0	22.5	16.0	18.5	17.0	16.0	16.5
12	14.0	12.0	13.0	19.0	16.0	17.5	22.0	---	---	19.0	15.5	17.0
13	14.0	10.5	12.5	19.5	16.0	17.5	---	---	---	17.5	16.0	16.5
14	13.5	11.5	12.5	17.0	15.0	16.0	---	---	---	18.5	15.0	16.5
15	12.5	11.5	12.0	18.5	13.5	16.0	---	---	---	18.0	15.5	16.5
16	15.0	10.5	12.5	19.5	15.0	17.0	---	---	---	18.0	14.0	15.5
17	17.0	13.0	15.0	20.0	16.5	18.0	---	---	---	---	---	---
18	17.5	15.0	16.0	19.5	16.0	18.0	---	---	---	---	---	---
19	18.5	14.5	16.5	20.0	16.5	18.0	---	---	---	14.0	12.0	13.0
20	18.0	15.0	16.5	21.0	16.0	18.5	---	---	---	12.5	11.5	12.0
21	18.0	14.0	16.0	22.0	17.5	19.5	---	---	---	12.0	10.0	11.0
22	18.0	15.0	16.5	24.0	19.0	21.0	---	---	---	11.5	9.0	10.5
23	16.5	14.5	15.0	23.0	19.0	21.0	---	---	---	13.0	10.0	11.0
24	15.5	12.5	14.0	23.0	19.0	20.5	---	---	---	13.0	9.5	11.0
25	17.0	13.0	15.0	23.5	18.5	20.5	---	---	---	13.0	9.0	11.0
26	17.5	14.5	16.0	23.0	18.5	21.0	---	---	---	13.5	10.0	11.5
27	16.0	13.0	14.5	23.5	18.0	20.5	---	---	---	15.0	11.0	12.5
28	16.5	12.0	14.5	23.5	18.0	20.5	---	---	---	14.0	11.5	12.5
29	18.0	13.5	16.0	22.5	19.0	20.5	---	---	---	15.0	11.0	12.5
30	16.5	15.0	15.5	22.0	17.5	19.5	---	---	---	15.0	11.5	13.0
31	---	---	---	22.0	16.5	19.0	---	---	---	---	---	---
MONTH	18.5	9.0	14.0	24.0	13.5	18.5	22.5	14.0	18.5	20.5	9.0	13.5
YEAR	24.0	3.0	14.0									

06035000 WILLOW CREEK NEAR HARRISON, MT

LOCATION.--Lat 45°43'21", long 111°44'17", in SW¼NW¼ sec.28, T.1 S., R.1 W., Madison County, Hydrologic Unit 10020005, on right bank 2.2 mi (3.5 km) upstream from Willow Creek Dam, 2.5 mi (4.0 km) northeast of Harrison, and at mile 13.6 (21.9 km), revised.

DRAINAGE AREA.--83.8 mi^2 (217.0 km^2).

PERIOD OF RECORD.--April 1938 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1559: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,750 ft (1,448 m), from topographic map. Prior to Oct. 8, 1946, water-stage recorder at datum 0.22 ft (0.067 m) higher, with different concrete control.

REMARKS.--Records good except those for winter period and period of no gage-height record, July 24 to Sept. 2, which are poor. Diversions for irrigation of about 12,500 acres (50.6 km^2) of which 3,500 acres (14.2 km^2) is in Norwegian Creek drainage. Several observations of water temperature were made during the year and are are available in files of Helena district office.

AVERAGE DISCHARGE.--42 years, 39.8 ft^3/s (1.127 m^3/s), 28,840 acre-ft/yr (35.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 813 ft^3/s (23.0 m^3/s) Feb. 3, 1963, gage height, 4.24 ft (1.292 m), from floodmarks, from rating curve extended above 300 ft^3/s (8.50 m^3/s); minimum, 1.4 ft^3/s (0.040 m^3/s) Sept. 17, 1956, gage height, 0.39 ft (0.119 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 254 ft^3/s (7.19 m^3/s) May 25, gage height, 2.39 ft (0.728 m); maximum gage height not determined, occurred during period of no gage-height record and backwater from ice; minimum daily discharge, 5.0 ft^3/s (0.14 m^3/s) July 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	12	17	23	21	35	30	97	84	106	8.0	10
2	6.2	12	20	22	23	33	30	96	99	104	7.5	14
3	6.4	14	23	22	24	30	30	94	104	122	7.0	14
4	6.2	15	25	21	26	23	37	94	92	119	7.5	11
5	6.2	16	27	21	26	30	44	88	89	110	8.0	9.4
6	6.4	16	29	14	25	34	44	89	107	106	7.0	9.1
7	7.2	16	31	16	24	33	37	116	110	96	6.0	9.2
8	7.5	17	29	19	23	30	34	96	109	89	7.0	11
9	7.9	17	29	22	23	27	37	92	112	82	8.0	11
10	7.8	16	27	24	22	32	38	134	122	73	8.0	12
11	7.7	16	23	27	23	35	36	102	148	72	7.0	19
12	8.4	16	24	30	23	30	36	73	165	70	6.0	28
13	9.1	18	26	30	23	30	39	57	158	75	6.0	20
14	8.8	20	28	29	21	30	44	45	138	66	7.0	23
15	9.3	22	26	26	20	32	51	37	155	63	8.0	18
16	11	25	24	24	17	27	44	45	162	53	9.0	18
17	9.2	25	25	23	18	32	47	65	152	36	8.0	17
18	8.2	25	27	22	20	28	55	51	170	30	7.0	17
19	8.0	24	30	20	27	27	56	43	184	24	7.0	20
20	7.6	23	27	19	27	27	64	50	191	21	8.0	21
21	9.1	22	25	19	26	27	80	88	220	17	9.0	28
22	8.8	22	24	20	25	29	80	130	236	10	10	25
23	7.8	22	24	20	25	29	72	163	240	10	9.0	24
24	9.1	22	23	19	27	28	80	142	213	9.0	8.0	26
25	11	23	25	17	33	28	84	216	177	8.6	7.6	28
26	14	21	24	13	30	28	82	142	177	8.0	7.0	31
27	14	18	24	11	36	30	79	99	168	7.0	9.0	37
28	17	15	23	9.0	41	32	73	80	129	6.5	12	38
29	16	12	22	11	39	31	78	70	115	6.0	10	36
30	13	15	22	15	---	31	110	99	110	5.5	8.0	34
31	13	---	23	17	---	29	---	92	---	5.0	9.0	---
TOTAL	287.6	557	776	625.0	738	927	1651	2885	4436	1609.6	245.6	618.7
MEAN	9.28	18.6	25.0	20.2	25.4	29.9	55.0	93.1	148	51.9	7.92	20.6
MAX	17	25	31	30	41	35	110	216	240	122	12	38
MIN	5.7	12	17	9.0	17	23	30	37	84	5.0	6.0	9.1
AC-FT	570	1100	1540	1240	1460	1840	3270	5720	8800	3190	487	1230

CAL YR 1979 TOTAL 10025.0 MEAN 27.5 MAX 134 MIN 4.2 AC-FT 19880
WTR YR 1980 TOTAL 15356.5 MEAN 42.0 MAX 240 MIN 5.0 AC-FT 30460

06036650 JEFFERSON RIVER NEAR THREE FORKS, MT

LOCATION.--Lat 45°53'52", long 111°35'45", in SW¼SW¼NW¼ sec.27, T.2 N., R.1 E., Broadwater County, Hydrologic Unit 10020005, on left bank 50 ft (15 km) downstream from bridge on U.S. Highway 10, 2.5 mi (4.0 km) northwest of Three Forks, and at mile 2,329.3 (3,747.8 km).

DRAINAGE AREA.--9,532 mi^2 (24,688 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,160 ft (1,268 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Some regulation by by Ruby River Reservoir (station number 06020500) and Clark Canyon Reservoir (station number 06015300). Diversions for irrigation of about 390,000 acres (1,580 km^2) above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,500 ft^3/s (269 m^3/s) June 17, 1980, gage height, 6.77 ft (2.063 m); maximum gage height recorded, 7.32 ft (2.231 m) Dec. 17, 1979 (ice jam), may have been higher during period of no gage-height record during 1980 water year winter period; minimum daily discharge, 400 ft^3/s (11.3 m^3/s) Jan. 29, 1980; minimum gage height, 1.72 ft (0.524 m) part of each day Aug. 11-13, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,500 ft^3/s (269 m^3/s) June 17, gage height, 6.77 ft (2.063 m); maximum gage height recorded, 7.32 ft (2.231 m) Dec. 17 (ice jam), may have been higher during period of no gage-height record during winter period; minimum daily discharge, 400 ft^3/s (11.3 m^3/s) Jan. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	574	1580	940	1200	900	1650	1230	5160	7060	3870	741	1340
2	577	1540	1200	1250	1160	1470	1220	5000	7130	3880	766	1330
3	594	1520	1510	1100	1200	1430	1220	4790	7640	3980	802	1350
4	622	1500	1550	1130	1250	1330	1220	4800	8700	4510	805	1370
5	651	1550	1550	900	1250	1000	1220	4990	9220	5500	809	1330
6	675	1590	1440	660	1200	1170	1250	4990	9250	5600	788	1280
7	687	1590	1400	580	1120	1250	1260	5200	8610	4990	734	1280
8	694	1590	1390	540	1120	1400	1260	5540	8190	4170	702	1290
9	700	1560	1390	500	1230	1400	1240	6330	7780	3690	684	1350
10	703	1550	1400	640	1200	1370	1240	7080	7410	3530	676	1370
11	713	1510	1250	870	1150	1380	1250	7600	7300	3260	667	1520
12	734	1520	1140	840	1200	1380	1260	7930	7540	2950	660	2170
13	745	1510	1240	1220	1150	1290	1260	7160	7950	2710	632	2730
14	786	1450	1300	1330	880	1280	1260	5710	8370	2600	623	2720
15	828	1420	1400	1500	760	1320	1310	4920	8370	2590	655	2770
16	919	1420	680	1550	1000	1290	1400	4530	8550	2430	708	2660
17	1090	1440	580	1400	900	1220	1510	4640	9320	2230	797	2510
18	1160	1490	1150	1300	960	1220	1600	4970	9080	1940	867	2430
19	1240	1540	1350	1200	1150	1240	1810	4860	8020	1740	884	2350
20	1280	1530	1570	1150	1400	1230	2350	4520	7460	1590	905	2350
21	1330	1360	1570	900	1800	1220	3340	4450	7140	1520	978	2380
22	1440	1310	1500	1000	1800	1220	4750	4640	7010	1380	1040	2440
23	1510	1240	1400	1220	1650	1230	5310	5000	6840	1220	1110	2480
24	1590	1240	1400	1330	1550	1220	5080	5960	6820	1100	1140	2460
25	1610	1300	1350	1330	1550	1210	4710	7580	7660	1020	1120	2420
26	1620	1300	1300	1020	1600	1190	4970	8400	7040	946	1110	2390
27	1590	1240	1250	800	1750	1190	5200	8880	6130	894	1150	2360
28	1610	1220	1210	500	2150	1210	5010	8540	5470	857	1210	2320
29	1640	1200	1200	400	1950	1220	4730	7980	4710	771	1260	2260
30	1640	1050	1000	500	---	1230	4720	7360	4140	742	1270	2210
31	1590	---	1000	700	---	1230	---	7040	---	754	1280	---
TOTAL	33142	42860	39610	30560	37980	39690	75190	186550	225910	78964	27573	61220
MEAN	1069	1429	1278	986	1310	1280	2506	6018	7530	2547	889	2041
MAX	1640	1590	1570	1550	2150	1650	5310	8880	9320	5600	1280	2770
MIN	574	1050	580	400	760	1000	1220	4450	4140	742	623	1280
AC-FT	65740	85010	78570	60620	75330	78730	149100	370000	448100	156600	54690	121400

CAL YR 1979 TOTAL 661560 MEAN 1812 MAX 8320 MIN 404 AC-FT 1312000
WTR YR 1980 TOTAL 879249 MEAN 2402 MAX 9320 MIN 400 AC-FT 1744000

06036650 JEFFERSON RIVER NEAR THREE FORKS, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June to September 1980.

INSTRUMENTATION.--Temperature recorder since June 4, 1980.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 25.0°C on July 22.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN	MAX	MIN AUGUST	MEAN	MAX	MIN SEPTEMBER	MEAN
1	---	---	---	18.5	15.5	17.0	23.5	19.5	21.5	17.0	13.0	15.0
2	---	---	---	20.0	17.0	18.5	23.5	19.0	21.5	15.5	14.0	14.5
3	---	---	---	19.0	17.5	18.5	21.5	19.0	20.0	16.0	13.0	14.5
4	12.5	---	---	19.5	16.5	18.0	20.5	16.0	18.5	16.5	12.5	14.5
5	13.0	11.5	12.0	19.0	17.5	18.5	20.5	16.5	18.5	17.5	13.0	15.5
6	13.0	12.0	12.5	20.5	17.5	19.0	20.5	16.5	18.5	18.0	14.5	16.5
7	13.0	11.0	12.0	21.0	18.5	20.0	21.0	17.0	19.0	18.5	16.0	17.0
8	15.0	12.5	13.5	21.0	19.5	20.0	21.5	17.5	19.5	17.5	15.5	16.5
9	17.0	14.5	16.0	21.5	18.5	20.0	21.5	18.0	20.0	17.5	15.0	16.0
10	18.5	16.5	17.0	21.0	19.5	20.0	22.0	18.0	20.0	17.0	15.5	16.0
11	17.5	15.5	16.5	22.0	19.0	20.5	22.0	18.0	20.0	16.5	15.0	15.5
12	16.0	14.0	15.0	20.5	19.0	19.5	22.0	18.0	20.0	16.5	14.0	15.5
13	15.0	12.5	14.0	19.5	17.5	18.5	22.0	18.0	20.0	15.5	15.0	15.0
14	15.0	14.0	14.5	19.0	17.0	18.0	22.0	18.0	20.0	16.5	14.5	15.0
15	14.0	13.0	13.5	19.5	16.0	17.5	21.0	19.0	19.5	15.5	14.0	15.0
16	15.5	13.0	14.0	21.0	16.5	18.5	21.5	17.5	19.5	14.5	12.5	13.5
17	18.0	15.0	16.5	21.0	18.5	19.5	21.5	18.0	20.0	15.5	12.5	14.0
18	19.0	17.0	18.0	21.0	18.0	19.5	20.0	16.0	17.5	14.0	13.5	13.5
19	19.0	17.0	18.0	21.0	18.5	19.5	18.0	15.0	16.5	14.0	12.5	13.5
20	19.5	17.5	18.5	22.0	17.5	19.5	17.0	15.0	16.0	13.5	12.0	12.5
21	19.0	17.0	18.0	23.5	18.5	21.0	19.5	15.0	17.5	12.5	11.5	12.0
22	19.5	17.5	18.5	25.0	20.0	22.5	18.0	16.0	16.5	12.0	9.5	11.0
23	18.0	16.5	17.0	24.5	21.0	23.0	18.5	14.5	16.5	12.0	10.5	11.0
24	17.0	14.5	16.0	24.0	20.5	22.5	19.0	15.5	17.5	12.5	10.5	11.5
25	18.0	15.5	17.0	24.5	20.5	22.0	19.0	15.0	17.0	13.0	10.5	11.5
26	19.0	17.0	18.0	24.5	20.5	22.5	19.5	15.5	17.5	13.0	10.5	12.0
27	18.0	15.5	16.5	24.5	20.0	22.0	18.0	16.0	17.0	14.5	11.5	13.0
28	17.5	14.0	16.0	24.5	20.0	22.5	17.5	15.0	16.5	13.5	12.0	12.5
29	18.5	15.5	17.0	23.5	20.5	22.0	17.5	14.0	16.0	14.0	11.5	12.5
30	18.0	16.5	17.0	23.0	19.5	21.5	16.0	14.0	15.0	14.5	12.0	13.0
31	---	---	---	23.0	18.5	20.5	15.5	13.0	14.0	---	---	---
MONTH	19.5	11.0	16.0	25.0	15.5	20.0	23.5	13.0	18.5	18.5	9.5	14.0
YEAR	25.0	9.5	17.0									

06038500 MADISON RIVER BELOW HEBGEN LAKE, NEAR GRAYLING, MT

LOCATION.--Lat 44°52'00", long 111°20'15", near northeast corner of sec.22, T.11 S., R.3 E., Gallatin County, Hydrologic Unit 10020007, Gallatin National Forest, on right bank 1,500 ft (457 m) downstream from Hebgen Dam, 8 mi (13 km) northwest of Grayling, 17 mi (27 km) upstream for West Fork, and at mile 103 (166 km).

DRAINAGE AREA.--905 mi^2 (2,344 km^2).

PERIOD OF RECORD.--June 1909 to current year. Prior to October 1938 adjusted runoff only, published in WSP 1309. Prior to October 1949, published as "below Hebgen Reservoir".

REVISED RECORDS.--WSP 1509: 1948. WSP 1559: Drainage area. WSP 1629: 1943. WSP 1709: 1959. WSP 1729: 1943.

GAGE.--Water-stage recorder. Datum of gage is 6,448.47 ft (1,965.494 m) National Geodetic Vertical Datum of 1929 (after 1959 earthquake). Prior to July 13, 1943, nonrecording gage in stilling well.

REMARKS.--Records excellent. Flow completely regulated by Hebgen Lake (station number 06038000). Several observations of water temperature were made during the year and are available in files of Helena district office. Diversions for irrigation of about 1,100 acres (4.45 km^2) above station.

AVERAGE DISCHARGE.--71 years, 995 ft^3/s (28.18 m^3/s), 14.93 in/yr (379 mm/yr), 720,900 acre-ft/yr (889 hm^3/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,200 ft^3/s (289 m^3/s) Aug. 17, 1959, caused by wave over Hebgen Dam during earthquake (gage height, 5.3 ft or 1.62 m, from floodmark), from rating curve extended above 3,500 ft^3/s (99.1 m^3/s) on basis of slope-area measurement of peak flow; maximum observed unaffected by wave over dam, 5,980 ft^3/s (169 m^3/s) June 3, 1943, gage height, 3.69 ft (1.125 m); minimum daily, 5.0 ft^3/s (0.14 m^3/s) May 9-12, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,960 ft^3/s (55.5 m^3/s) July 3, gage height, 2.43 ft (0.741 m); minimum daily, 349 ft^3/s (9.88 m^3/s) May 19, 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	918	1200	1190	706	764	733	1010	1030	379	825	1030	1160
2	918	1200	1190	707	763	732	1010	1020	385	955	1030	1160
3	918	1210	1130	706	762	731	1010	995	385	1350	1030	1160
4	918	1240	906	707	763	733	1010	995	385	1100	1030	1160
5	917	1240	721	708	763	733	1000	999	385	1170	1030	1160
6	917	1230	720	708	762	732	1010	700	838	1170	1030	1160
7	916	1210	721	708	762	733	1020	386	1450	1190	1030	1160
8	917	1210	721	708	762	732	1020	390	1450	1510	1030	1160
9	915	1210	728	708	762	733	1020	391	1450	1500	1030	1160
10	914	1210	734	708	762	733	1020	391	1470	1400	1020	1160
11	914	1210	734	707	762	733	1020	391	1470	1340	1020	1160
12	913	1210	735	707	762	734	1010	393	1470	1340	1020	1150
13	912	1200	734	741	762	734	1010	394	1470	1340	1020	1150
14	911	1200	734	767	752	733	1010	393	1470	1150	1020	1150
15	912	1210	735	767	734	733	1010	395	1470	906	1020	1150
16	910	1210	734	767	734	734	1010	398	1470	821	1020	1150
17	911	1210	734	767	734	733	1010	398	1470	823	1020	1150
18	911	1200	734	770	732	734	1010	385	1470	821	1020	1150
19	1040	1200	734	770	729	734	1010	349	1470	824	1020	1150
20	1180	1200	734	766	730	721	1010	349	1470	825	1020	1150
21	1200	1200	726	766	731	805	1010	361	1470	822	1020	1150
22	1200	1200	705	765	732	1020	1010	367	1470	751	1010	1150
23	1200	1200	705	766	732	1020	1010	367	1300	713	1010	1150
24	1200	1200	706	765	732	1020	1010	373	1180	715	1010	1150
25	1200	1200	706	769	732	1020	1020	373	1180	805	1010	1150
26	1200	1190	706	769	730	1020	1020	373	1180	1030	1010	1150
27	1200	1190	707	768	732	1010	1020	373	1120	1030	1030	1140
28	1200	1190	707	770	731	1010	1020	373	890	1030	1170	1140
29	1200	1190	707	768	733	1010	1020	373	800	1030	1170	1140
30	1190	1190	707	764	---	1010	1020	379	800	1030	1170	1210
31	1200	---	706	765	---	1010	---	379	---	1030	1160	---
TOTAL	31872	36160	23891	23038	21641	25603	30400	15233	34667	32346	32260	34640
MEAN	1028	1205	771	743	746	826	1013	491	1156	1043	1041	1155
MAX	1200	1240	1190	770	764	1020	1020	1030	1470	1510	1170	1210
MIN	910	1190	705	706	729	721	1000	349	379	713	1010	1140
AC-FT	63220	71720	47390	45700	42920	50780	60300	30210	68760	64160	63990	68710
MEAN †	724	746	709	751	741	691	973	1866	1582	964	846	864
CFSM †	.80	.82	.78	.83	.82	.76	1.08	2.06	1.75	1.07	.93	.95
IN †	.92	.92	.90	.96	.88	.88	1.20	2.38	1.95	1.23	1.08	1.06
AC-FT †	44520	44420	43590	46200	42620	42480	57900	114700	94160	59260	51990	51410

OBSERVED

CAL YR 1979	TOTAL	308558	MEAN	845	MAX	1500	MIN	105	AC-FT	612200
WTR YR 1980	TOTAL	341751	MEAN	934	MAX	1510	MIN	349	AC-FT	677900

ADJUSTED

CAL YR 1979	TOTAL	326594	MEAN	895	CFSM	0.99	IN	13.42	AC-FT	647800
WTR YR 1980	TOTAL	349534	MEAN	955	CFSM	1.06	IN	14.36	AC-FT	693300

† Adjusted for change in Hebgen Lake.

06038800 MADISON RIVER AT KIRBY RANCH, NEAR CAMERON, MT

LOCATION.--Lat 44°53'22", long 111°34'46", in NE1/4 SE1/4 sec.10, T.11 S., R.1 E., Madison County, Hydrologic Unit 10020007, on upstream side of county bridge 0.2 mi (0.3 km) upstream from West Fork Madison River, and 22 mi (35 km) south of Cameron, and at mile 89.8 (144.5 km).

DRAINAGE AREA.--1,065 mi^2 (2,758 km^2).

PERIOD OF RECORD.--September 1959 to September 1963, May 1978 to current season (seasonal records only).

GAGE.--Nonrecording gage. Altitude of gage is 5,860 ft (1,786 m), from topographic map. Aug. 31, 1959, to Oct. 2, 1959, nonrecording gage at present site but at a different datum. Oct. 3, 1959, to September 1963, water-stage recorder at site 75 ft (23 m) upstream at different datum.

REMARKS.--Records good. Flow regulated by Hebgen Lake (station 06038000). Diversions for irrigation of about 1,500 acres (6.07 km^2) above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,710 ft^3/s (133 m^3/s) Oct. 23, 1959, gage height, 3.04 ft (0.930 m), site and datum then in use; minimum daily, 280 ft^3/s (7.93 m^3/s) May 26, 27, 1960.

EXTREMES FOR CURRENT SEASON.--Maximum discharge observed, 2,490 ft^3/s (70.5 m^3/s) June 21, 22, 23, gage height, 1.90 ft (0.579 m); minimum daily, 621 ft^3/s (17.6 m^3/s) May 14, 15, 16.

REVISIONS.--The maximum discharges for the water years 1978 and 1979 have been revised to 1,880 ft^3/s (53.2 m^3/s) May 16, 17, 1978, gage height, 1.66 ft (0.506 m) and 1,600 ft^3/s (45.3 m^3/s) May 1, 1979, gage height, 1.53 ft (0.466 m), from rating change, superseding figures published in reports for 1978 and 1979.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1								1360	783	1160		
2								1380	783	1080		
3								1380	783	1750		
4								1380	783	1540		
5								1380	744	1540		
6								1380	744	1540		
7								1400	744	1540		
8								852	744	1540		
9								1000	1540	1860		
10								1000	2030	1540		
11								731	2100	1540		
12								731	2220	1540		
13								731	2220	1540		
14								621	2350	1540		
15								621	2350	1160		
16								621	2220	1080		
17								693	2220	1000		
18								693	2220	1000		
19								693	2220	1000		
20								693	2350	1000		
21								1000	2490	1000		
22								1160	2490	1000		
23								1340	2490	852		
24								1250	1750	866		
25								1000	1750	852		
26								1000	1980	1000		
27								852	1860	1080		
28								757	1440	1080		
29								783	1340	1080		
30								783	1160	1080		
31								731	---	1080		
TOTAL								29996	50898	38460		
MEAN								968	1697	1241		
MAX								1400	2490	1860		
MIN								621	744	852		
AC-FT								59500	101000	76290		

MADISON RIVER BASIN

06040300 JACK CREEK NEAR ENNIS, MT

LOCATION.--Lat 45°21'23", long 111°34'51", in NE¼SE¼ sec.34, T.5 S., R.1 E., Madison County, Hydrologic Unit 10020007, Beaverhead National Forest, on left bank 800 ft (244 m) upstream from bridge at forest boundary, 8.8 mi (14.2 km) east of Ennis, and at mile 6.5 (10.5 km).

DRAINAGE AREA.--51.5 mi^2 (133.4 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1973 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 5,600 ft (1,707 m), from topographic map.

REMARKS.--Water-discharge records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--7 years, 45.1 ft^3/s (1.277 m^3/s), 32,700 acre-ft/yr (40.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 555 ft^3/s (15.7 m^3/s) June 14, 1974, gage height, 3.97 ft (1.210 m) in gage well, about 4.97 ft (1.515 m), from outside gage; maximum gage height, 4.37 ft (1.332 m) Jan. 1, 1979 (backwater from ice) minimum discharge, 5.0 ft^3/s (0.14 m^3/s) Mar. 7, 1975, gage height, 1.84 ft (0.561 m); minimum gage height, 1.81 ft (0.552 m) Mar. 10, 1979.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s (4.25 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Jan. 28	2330	ice jam		*3.29	1.003	May 16	1730	*230	6.51	3.37	1.027
May 3	2030	179	5.07	3.18	0.969						

Minimum discharge, 5.8 ft^3/s (0.16 m^3/s) Mar. 26, gage height, 1.83 ft (0.558 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	15	15	13	11	11	10	113	119	84	43	27
2	19	14	16	13	11	11	10	106	116	83	41	26
3	19	19	16	13	11	11	10	118	114	84	40	27
4	19	18	15	12	11	9.0	10	121	114	83	40	26
5	18	17	14	12	11	11	11	115	110	78	38	26
6	18	16	14	9.0	11	11	11	121	112	74	37	25
7	18	15	14	10	11	11	11	135	110	70	36	25
8	18	16	14	9.0	11	10	11	136	103	68	34	29
9	18	14	14	12	11	10	10	129	103	67	33	26
10	18	17	14	12	11	10	10	119	109	66	32	26
11	18	16	10	11	11	11	10	109	114	63	32	42
12	18	13	14	12	11	11	11	99	114	61	32	45
13	17	13	14	12	11	10	12	91	110	62	34	32
14	17	14	15	12	10	10	16	83	110	61	33	35
15	20	14	13	12	10	11	18	79	116	59	33	29
16	23	15	12	12	11	10	16	128	109	56	32	28
17	20	18	14	12	11	10	22	146	105	55	31	26
18	19	17	14	11	11	11	29	123	107	54	33	26
19	20	16	13	9.0	11	10	39	117	109	53	33	27
20	20	12	13	10	11	10	55	118	107	51	31	26
21	19	10	13	12	11	10	65	125	107	50	30	35
22	19	13	13	12	11	10	69	143	105	49	30	30
23	19	15	13	12	11	10	81	148	105	51	30	33
24	19	16	13	12	10	9.9	89	141	102	49	29	31
25	19	16	13	12	10	9.9	99	146	97	48	28	28
26	20	15	13	11	11	10	103	126	95	46	27	26
27	18	15	11	9.0	11	10	95	118	92	45	29	26
28	19	13	11	7.0	11	10	94	116	89	44	29	26
29	18	12	11	8.0	11	10	97	118	84	44	27	25
30	15	14	12	9.0	---	11	110	122	86	45	26	24
31	13	---	13	10	---	10	---	120	---	44	26	---
TOTAL	574	448	414	342.0	315	319.8	1234	3729	3173	1847	1009	864
MEAN	18.5	14.9	13.4	11.0	10.9	10.3	41.1	120	106	59.6	32.5	28.8
MAX	23	19	16	13	11	11	110	148	119	84	43	45
MIN	13	10	10	7.0	10	9.0	10	79	84	44	26	24
AC-FT	1140	889	821	678	625	634	2450	7400	6290	3660	2000	1710

CAL YR 1979 TOTAL 13486.0 MEAN 36.9 MAX 221 MIN 10 AC-FT 26750
WTR YR 1980 TOTAL 14268.8 MEAN 39.0 MAX 148 MIN 7.0 AC-FT 28300

06040300 JACK CREEK NEAR ENNIS, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June to July 1980 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
JUN 05...	1130	110	1	158	7.9	15.5	6.0	5.9	9.8	96	68	0
JUL 09...	1500	66	1	162	8.2	26.0	14.5	2.3	8.3	98	74	9

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
JUN 05...	19	5.0	4.2	.2	1.0	65	14	1.2	.1	10	98	97
JUL 09...	21	5.2	3.9	.2	1.0	72	15	.4	.2	8.8	108	95

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
JUN 05...	.13	29.1	.01	.04	.02	1.4	1.5	.60	1.5	2.0	.02	.01
JUL 09...	.15	19.2	.08	.00	.02	.01	.39	.38	.41	.39	.02	.04

DATE	TIME	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	BORON, DIS-SOLVED (UG/L AS B) (01020)
JUN 05...	1130	400	80	1	1	0	30	< 1	60	30
JUL 09...	1500	170	10	2	2	100	40	< 1	50	10

DATE	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
JUN 05...	1	< 1	0	0	0	< 3	3	< 10	540	77
JUL 09...	1	1	10	0	1	< 3	5	< 10	250	< 10

06040300 JACK CREEK NEAR ENNIS, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)
JUN										
05...	20	< 10	10	< 4	20	2	.1	.0	< 10	5
JUL										
09...	3	11	10	< 4	10	2	.0	.0	< 10	5

DATE	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUN									
05...	2	0	0	0	0	120	< 6.0	20	< 3
JUL									
09...	2	0	0	0	0	140	< 6.0	20	< 3

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
JUN						
05...	1130	6.0	110	15	4.5	75
JUL						
09...	1500	14.5	66	9	1.6	73

06041000 MADISON RIVER BELOW ENNIS LAKE, NEAR MCALLISTER, MT

LOCATION.--Lat 45°29'25", long 111°38'00", in NW¼ sec.17, T.4 S., R.1 E., Madison County, Hydrologic Unit 10020007, on right bank 500 ft (152 m) downstream from Madison powerplant, 1.5 mi (2.4 km) downstream from Ennis Lake, 5.7 mi (9.2 km) northeast of McAllister, and at mile 38.8 (62.4 km).

DRAINAGE AREA.--2,186 mi^2 (5,662 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1901 to December 1905, October 1906 to current year. Prior to October 1938 adjusted monthly runoff only, published in WSP 1309. Published as "below Madison Reservoir" 1938-49. Records published as "near Red Bluff" 1890-94 and as "near Norris" 1910 are not equivalent and are published as "near Norris" in WSP 1309.

REVISED RECORDS.--WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,689.03 ft (1,429.216 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to May 7, 1941, nonrecording gage in wooden stilling well at present site at different datum. May 7, 1941, to Jan. 13, 1945, nonrecording gages in concrete stilling well at present site and datum.

REMARKS.--Water-discharge records good. Flow regulated by Hebgen Lake (station number 06038000) and Ennis Lake (station number 06040500). Diversions for irrigation of about 23,000 acres (93.1 km^2) above station.

AVERAGE DISCHARGE.--42 years, 1,755 ft^3/s (49.70 m^3/s), 1,271,000 acre-ft/yr (1.57 km^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,550 ft^3/s (270 m^3/s) June 12, 1970, gage height, 8.01 ft (2.441 m); minimum daily, 210 ft^3/s (5.95 m^3/s) Aug. 25, 26, 1959.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,070 ft^3/s (115 m^3/s) June 12, gage height, 5.21 ft (1.538 m); minimum daily, 735 ft^3/s (20.8 m^3/s) Jan. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1280	1770	1440	1000	1150	1610	1550	2660	1600	2050	1590	1590
2	1330	1860	1430	1110	1150	1580	1660	2720	1620	1860	1550	1590
3	1200	1870	1490	1350	1150	1410	1640	2560	1640	2020	1530	1570
4	1310	1850	1620	1440	1150	1220	1560	2340	1650	2590	1460	1580
5	1310	1840	1610	1440	1140	1160	1440	2210	1650	2530	1380	1550
6	1270	1840	1600	1280	1140	1160	1510	2210	1640	2400	1350	1550
7	1210	1850	1540	938	1280	1260	1650	2360	2200	2360	1260	1540
8	1260	1870	1500	973	1370	1330	1720	2440	2540	2290	1230	1540
9	1300	1880	1500	984	1370	1370	1600	2420	2570	2470	1250	1560
10	1300	1860	1460	1120	1350	1430	1500	2360	2740	2870	1320	1560
11	1300	1810	1330	1200	1350	1430	1500	2080	3140	2620	1280	1620
12	1300	1780	1060	997	1340	1360	1480	1840	3660	2280	1230	1700
13	1240	1710	1020	1100	1340	1310	1480	1650	3640	2180	1230	1710
14	1220	1680	1020	1330	1330	1300	1480	1510	3540	2110	1300	1760
15	1350	1700	1030	1440	1170	1330	1490	1390	3480	1920	1390	1790
16	1530	1700	1070	1430	941	1380	1460	1370	3360	1560	1480	1750
17	1600	1700	1290	1430	1030	1220	1420	1370	3150	1370	1450	1720
18	1490	1700	1440	1430	1150	1160	1430	1370	3070	1370	1300	1700
19	1410	1740	1440	1250	1520	1160	1440	1370	3160	1380	1360	1690
20	1450	1780	1430	1030	1920	1160	1450	1400	3380	1390	1420	1730
21	1520	1760	1380	1130	1790	1260	1450	1790	3570	1360	1430	1740
22	1620	1670	1310	1330	1700	1400	1450	2690	3590	1340	1470	1740
23	1660	1630	1310	1120	1600	1450	1450	3220	3620	1320	1420	1740
24	1650	1650	1360	1020	1570	1440	1460	3130	3390	1290	1380	1670
25	1670	1720	1230	1020	1400	1450	1730	3130	2760	1260	1360	1700
26	1660	1760	1160	1020	1270	1450	1950	3070	2560	1230	1360	1700
27	1670	1750	1260	897	1310	1450	1970	2350	2780	1130	1340	1700
28	1670	1700	1160	735	1480	1440	1970	1770	2780	1230	1490	1630
29	1680	1570	1000	831	1580	1420	2070	1560	2560	1280	1590	1630
30	1680	1490	1000	1120	---	1440	2250	1580	2280	1340	1590	1700
31	1690	---	1000	1150	---	1450	---	1590	---	1480	1590	---
TOTAL	44830	52490	40490	35645	39041	41990	48210	65510	83320	55880	43380	49750
MEAN	1446	1750	1306	1150	1346	1355	1607	2113	2777	1803	1399	1658
MAX	1690	1880	1620	1440	1920	1610	2250	3220	3660	2870	1590	1790
MIN	1200	1490	1000	735	941	1160	1420	1370	1600	1130	1230	1540
AC-FT	88920	104100	80310	70700	77440	83290	95620	129900	165300	110800	86040	98680

CAL YR 1979 TOTAL 531597 MEAN 1456 MAX 3680 MIN 869 AC-FT 1054000
WTR YR 1980 TOTAL 600536 MEAN 1641 MAX 3660 MIN 735 AC-FT 1191000

06041000 MADISON RIVER BELOW ENNIS LAKE, NEAR MCALLISTER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972-73, 1977 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1977 to current year.

INSTRUMENTATION.--Temperature recorder since June 21, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 23.0°C July 29, 1980; minimum, 0.0°C Nov. 19-22, 1977, Nov. 10-14, 1978.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 23.0°C July 29; minimum, 0.5°C Jan. 26, Feb. 13, 14.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	5.5	4.5	5.0	1.5	1.0	1.0	2.0	2.0	2.0
2	14.5	---	---	4.5	4.0	4.0	1.5	1.0	1.5	2.0	2.0	2.0
3	14.0	13.0	13.5	4.0	3.0	3.5	1.5	1.5	1.5	2.0	2.0	2.0
4	13.5	13.0	13.0	3.5	3.0	3.5	1.5	1.5	1.5	2.0	2.0	2.0
5	13.5	13.0	13.5	3.0	2.5	3.0	1.5	1.5	1.5	2.0	1.0	2.0
6	13.5	13.0	13.5	3.5	3.0	3.0	1.5	1.5	1.5	1.5	1.0	1.5
7	13.5	13.5	13.5	3.5	3.0	3.0	1.5	1.5	1.5	1.5	1.0	1.5
8	13.5	12.0	13.0	3.0	3.0	3.0	1.5	1.5	1.5	1.5	1.0	1.0
9	12.0	11.0	11.5	3.0	2.5	2.5	2.0	1.5	1.5	1.5	1.5	1.5
10	11.0	10.5	10.5	2.5	2.5	2.5	1.5	1.5	1.5	2.0	1.5	1.5
11	11.5	11.0	11.5	2.5	2.5	2.5	1.5	1.5	1.5	1.5	1.5	1.5
12	11.0	10.5	11.0	2.5	2.0	2.0	1.5	1.0	1.5	2.0	1.5	1.5
13	11.0	10.5	11.0	2.0	1.5	1.5	2.0	1.5	1.5	2.0	2.0	2.0
14	12.0	11.0	11.5	2.0	1.5	1.5	2.0	1.5	2.0	2.0	2.0	2.0
15	12.5	11.5	12.0	2.0	2.0	2.0	2.0	1.0	1.5	2.0	1.5	1.5
16	11.0	11.0	11.0	2.0	1.5	1.5	2.0	1.0	1.5	1.5	1.5	1.5
17	11.0	10.5	10.5	2.0	1.5	1.5	2.0	2.0	2.0	1.5	1.5	1.5
18	10.5	10.0	10.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.0	1.0
19	10.0	9.0	9.5	2.0	1.5	2.0	2.0	1.5	2.0	1.5	1.0	1.0
20	9.5	8.5	9.0	1.5	1.5	1.5	2.0	2.0	2.0	1.5	1.0	1.0
21	8.5	8.0	8.0	1.5	1.0	1.5	2.0	2.0	2.0	1.5	1.0	1.5
22	8.0	7.0	7.5	1.5	1.0	1.0	2.0	1.5	1.5	1.0	1.0	1.0
23	7.0	6.5	7.0	1.5	1.0	1.5	1.5	1.5	1.5	1.5	1.0	1.0
24	7.0	6.5	6.5	1.5	1.5	1.5	1.5	1.0	1.5	1.5	1.0	1.5
25	7.0	7.0	7.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.0
26	7.0	7.0	7.0	1.5	1.5	1.5	1.5	1.5	1.5	1.0	.5	.5
27	7.0	6.5	6.5	1.5	1.0	1.5	1.5	1.5	1.5	1.0	1.0	1.0
28	7.0	6.5	6.5	1.0	1.0	1.0	2.0	1.5	1.5	1.0	1.0	1.0
29	6.5	6.0	6.0	1.0	1.0	1.0	2.0	1.5	2.0	1.0	1.0	1.0
30	6.0	6.0	6.0	1.5	1.0	1.0	2.0	2.0	2.0	1.0	1.0	1.0
31	6.0	5.5	5.5	---	---	---	2.0	2.0	2.0	1.0	1.0	1.0
MONTH	14.5	5.5	9.5	5.5	1.0	2.0	2.0	1.0	1.5	2.0	.5	1.5

06041000 MADISON RIVER BELOW ENNIS LAKE, NEAR MCALLISTER, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN FEBRUARY	MEAN	MAX	MIN MARCH	MEAN	MAX	MIN APRIL	MEAN	MAX	MIN MAY	MEAN
1	1.5	1.0	1.0	2.5	2.0	2.0	4.0	2.5	3.5	13.0	11.5	12.0
2	1.5	1.5	1.5	2.5	2.0	2.0	2.5	2.0	2.0	13.0	11.5	12.0
3	1.5	1.5	1.5	2.5	2.0	2.0	3.0	2.0	2.5	13.5	12.0	12.5
4	1.5	1.0	1.5	2.0	2.0	2.0	3.0	2.5	2.5	13.0	12.0	12.5
5	1.5	1.0	1.5	2.5	2.0	2.0	3.5	2.5	3.0	14.0	12.5	13.0
6	1.5	1.5	1.5	2.5	2.0	2.0	3.5	3.0	3.5	14.5	12.5	13.5
7	1.5	1.0	1.5	2.0	2.0	2.0	4.0	3.5	3.5	14.5	13.5	14.0
8	1.0	1.0	1.0	2.0	1.5	2.0	4.5	4.0	4.0	14.5	14.0	14.0
9	1.5	1.0	1.0	2.0	1.5	1.5	4.5	4.0	4.5	14.0	13.5	14.0
10	1.5	1.0	1.0	2.0	2.0	2.0	4.5	4.0	4.5	14.0	12.0	13.0
11	1.0	1.0	1.0	2.0	2.0	2.0	4.5	4.0	4.0	12.0	10.0	11.0
12	1.0	1.0	1.0	2.5	2.0	2.0	5.0	4.0	4.5	11.0	10.0	10.5
13	1.0	.5	1.0	2.5	2.0	2.0	5.0	4.5	5.0	10.5	10.0	10.5
14	1.0	.5	.5	2.5	2.0	2.5	5.5	4.5	5.0	11.0	10.5	10.5
15	1.0	1.0	1.0	2.5	2.0	2.5	5.5	5.0	5.0	11.5	10.5	11.0
16	1.0	1.0	1.0	3.0	2.5	2.5	5.5	4.5	5.0	11.5	11.0	11.5
17	1.5	1.0	1.0	2.5	2.0	2.5	5.0	4.0	4.5	12.0	11.5	11.5
18	1.0	1.0	1.0	3.0	2.0	2.5	5.5	4.5	5.0	13.5	12.0	12.5
19	1.5	1.0	1.0	3.0	2.5	2.5	9.0	5.0	6.5	14.5	13.5	14.0
20	1.5	1.0	1.0	3.0	2.5	3.0	9.5	9.0	9.0	15.5	14.0	14.5
21	1.5	1.0	1.5	3.0	3.0	3.0	10.5	8.5	9.5	17.5	15.5	16.0
22	2.0	1.5	1.5	3.5	2.5	3.0	10.5	10.0	10.0	18.0	16.5	17.0
23	1.5	1.5	1.5	3.5	3.0	3.5	11.5	10.0	10.5	16.5	16.0	16.0
24	1.5	1.5	1.5	4.0	3.5	3.5	12.0	10.5	11.0	16.0	14.5	15.0
25	1.5	1.5	1.5	4.5	3.5	4.0	12.0	11.5	12.0	14.5	11.5	12.5
26	1.5	1.5	1.5	4.5	4.0	4.0	13.5	12.0	13.0	12.0	10.5	11.5
27	2.0	1.5	1.5	4.5	4.0	4.5	13.5	12.5	13.0	10.5	10.0	10.5
28	2.0	1.5	2.0	4.5	4.0	4.5	14.5	13.5	14.0	11.0	10.5	10.5
29	2.5	2.0	2.0	4.5	4.0	4.0	15.0	14.5	15.0	11.5	11.0	11.0
30	---	---	---	4.0	4.0	4.0	14.5	13.0	13.5	11.5	11.0	11.0
31	---	---	---	4.0	3.5	4.0	---	---	---	12.0	11.0	11.5
MONTH	2.5	.5	1.5	4.5	1.5	3.0	15.0	2.0	7.0	18.0	10.0	12.5

		JUNE			JULY			AUGUST			SEPTEMBER	
1	12.5	12.0	12.0	17.0	16.0	16.5	21.5	21.0	21.5	14.5	14.5	14.5
2	12.5	12.0	12.0	18.0	16.5	17.5	21.5	20.5	21.0	14.5	14.0	14.0
3	12.0	11.5	12.0	18.0	17.0	17.5	21.0	20.0	20.5	14.0	13.5	13.5
4	12.0	11.5	12.0	18.0	17.0	17.5	20.0	19.5	20.0	14.5	13.5	14.0
5	12.0	11.5	11.5	17.5	17.0	17.5	20.0	19.5	19.5	15.5	14.5	14.5
6	12.0	11.5	12.0	18.0	17.0	17.5	19.5	19.0	19.0	16.0	14.5	15.0
7	12.0	11.5	12.0	19.0	16.5	17.5	19.0	18.0	18.5	16.0	15.5	15.5
8	13.5	11.0	12.0	18.5	18.0	18.5	18.5	17.5	18.0	16.0	15.0	15.5
9	15.0	12.0	14.0	19.0	18.0	18.5	19.0	18.0	18.5	15.0	15.0	15.0
10	15.5	13.0	15.0	19.5	18.5	19.0	19.0	18.0	18.5	15.5	14.5	15.0
11	16.5	14.0	15.0	20.0	18.5	19.0	19.0	17.5	18.0	15.5	15.0	15.5
12	16.5	15.0	15.5	20.0	19.0	19.5	19.0	18.0	18.5	15.5	15.0	15.0
13	16.5	15.5	16.0	19.0	18.5	18.5	19.0	18.5	19.0	16.0	15.5	15.5
14	15.5	14.5	15.0	18.0	17.5	18.0	19.5	18.5	19.0	15.5	15.0	15.0
15	14.0	14.0	14.0	18.0	17.5	18.0	19.5	19.0	19.0	15.5	15.0	15.0
16	15.5	14.0	14.5	19.0	18.0	18.5	19.0	18.5	18.5	15.0	14.0	14.5
17	17.0	14.0	15.0	19.0	18.5	19.0	19.0	18.5	18.5	14.5	14.0	14.0
18	17.5	16.5	17.0	19.0	18.5	18.5	18.5	17.0	17.5	14.5	14.0	14.5
19	17.0	16.5	16.5	19.0	18.0	18.5	17.0	16.5	16.5	14.0	14.0	14.0
20	17.5	15.5	16.5	19.5	18.5	19.0	17.0	16.5	16.5	14.0	13.0	13.5
21	18.5	17.0	17.5	20.0	18.5	19.0	17.5	16.5	17.0	13.0	12.5	12.5
22	19.0	18.0	18.5	20.5	19.0	20.0	17.5	17.0	17.0	12.5	12.0	12.0
23	18.5	17.0	17.5	21.0	19.5	20.0	17.0	16.5	16.5	12.0	12.0	12.0
24	18.0	16.5	17.0	21.0	20.5	21.0	17.0	16.5	17.0	12.5	11.5	12.0
25	18.5	17.0	17.5	21.5	20.5	21.0	17.0	16.5	16.5	12.5	11.5	11.5
26	18.0	17.5	17.5	21.5	20.5	21.0	17.0	16.0	16.5	12.0	11.5	12.0
27	17.0	15.5	16.0	21.5	20.5	21.0	17.0	16.0	16.5	13.0	11.5	12.0
28	16.5	15.5	16.0	22.5	21.0	21.5	16.0	15.5	15.5	13.0	12.5	12.5
29	17.5	16.0	16.5	23.0	22.5	22.5	16.0	15.5	15.5	12.5	12.0	12.5
30	17.5	16.0	16.5	22.0	21.5	21.5	16.0	15.5	15.5	13.0	12.5	12.5
31	---	---	---	21.5	21.0	21.5	15.5	14.5	14.5	---	---	---
MONTH	19.0	11.0	15.0	23.0	16.0	19.0	21.5	14.5	18.0	16.0	11.5	14.0
YEAR	23.0	.5	8.5									

06043500 GALLATIN RIVER NEAR GALLATIN GATEWAY, MT

LOCATION.--Lat 45°29'51", long 111°16'09", in SE¼SE¼SE¼ sec.7, T.4 S., R.4 E., Gallatin County, Hydrologic Unit 10020008, on left bank 0.3 mi (0.5 km) downstream from Spanish Creek, 7.3 mi (11.7 km) south of Gallatin Gateway, and at mile 47.7 (76.7 km), revised.

DRAINAGE AREA.--825 mi^2 (2,137 km^2).

PERIOD OF RECORD.--August 1889 to September 1894, June 1930 to September 1969, annual maximum, water years 1970-71, October 1971 to current year. Monthly discharge only for some periods, published in WSP 1309. Published as West Gallatin River near Bozeman 1889-94.

REVISED RECORDS.--WSP 1389: 1892(M), 1893-94. WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5,167.7 ft (1,575.11 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 2C, 1932, nonrecording gages at several different sites and datums within 0.8 mi (1.3 km) of present site.

REMARKS.--Records good. Diversions for irrigation of about 1,400 acres (5.67 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--53 years, 814 ft^3/s (23.05 m^3/s), 589,700 acre-ft/yr (727 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,690 ft^3/s (274 m^3/s) June 17, 1974, gage height, 7.38 ft (2.249 m); minimum, 117 ft^3/s (3.31 m^3/s) Jan. 19, 1935, gage height, 0.68 ft (0.207 m), result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,900 ft^3/s (82.1 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 7	0515	3,010	85.2	3.93	1.198	June 21	0200	3,490	98.8	4.22	1.286
May 23	0115	*4,510	128	*4.76	1.451						

Minimum discharge, 206 ft^3/s (5.83 m^3/s) Nov. 29, gage height, 1.07 ft (0.326 m), result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	375	344	295	332	280	296	274	1830	2120	1780	682	534
2	374	327	329	330	300	283	271	1860	2180	1710	660	514
3	374	365	334	320	290	284	263	1880	2080	1810	652	511
4	374	389	330	318	285	279	270	1930	1970	1800	646	492
5	374	372	326	322	280	275	287	2050	1890	1610	623	480
6	369	359	322	293	275	294	294	2250	1920	1500	610	473
7	368	344	320	284	290	283	279	2770	1850	1400	602	478
8	368	356	316	290	280	273	261	2760	1790	1380	594	535
9	368	356	317	311	280	273	277	2740	1970	1400	586	527
10	368	359	328	346	289	281	271	2460	2270	1310	575	501
11	374	366	278	310	286	297	270	2060	2710	1230	568	619
12	370	325	266	309	291	297	269	1790	2970	1140	568	751
13	368	329	288	317	293	264	274	1600	2900	1110	609	638
14	366	317	305	323	282	275	310	1480	2790	1080	580	705
15	386	323	308	316	282	292	352	1420	2790	1050	604	604
16	462	323	301	307	288	264	330	1600	2610	979	650	582
17	412	343	320	305	293	247	368	1820	2640	956	588	545
18	402	379	318	309	299	268	441	1830	2850	954	578	531
19	429	368	309	262	301	277	529	1950	2980	904	727	546
20	430	314	310	256	306	275	691	2480	3050	875	660	524
21	396	286	325	302	297	276	812	3190	3230	849	596	603
22	396	291	335	292	299	279	855	3880	3010	822	575	562
23	394	297	329	293	292	273	946	3930	2880	812	568	553
24	392	330	319	292	275	276	1100	3410	2440	814	569	556
25	397	320	327	292	271	277	1300	3120	2290	782	538	529
26	418	283	329	250	281	259	1430	2560	2280	758	545	518
27	395	283	298	240	301	273	1420	2300	2140	728	567	514
28	406	261	244	250	309	275	1460	2180	1850	706	628	505
29	383	227	267	255	305	272	1620	2090	1770	690	561	498
30	347	249	277	260	---	289	1720	2120	1790	698	535	485
31	324	---	319	270	---	272	---	2120	---	690	529	---
TOTAL	11959	9785	9589	9156	8400	8598	19244	71460	72010	34327	18573	16413
MEAN	386	326	309	295	290	277	641	2305	2400	1107	599	547
MAX	462	389	335	346	309	297	1720	3930	3230	1810	727	751
MIN	324	227	244	240	271	247	261	1420	1770	690	529	473
AC-FT	23720	19410	19020	18160	16660	17050	38170	141700	142800	68090	36840	32560

CAL YR 1979 TOTAL 264520 MEAN 725 MAX 4250 MIN 227 AC-FT 524700
WTR YR 1980 TOTAL 289514 MEAN 791 MAX 3930 MIN 227 AC-FT 574300

06050000 HYALITE CREEK AT HYALITE RANGER STATION, NEAR BOZEMAN, MT

LOCATION.--Lat 45°33'42", long 111°04'12", in NW1/4 SE1/4 sec.23, T.3 S., R.5 E., Gallatin County, Hydrologic Unit 10020008, Gallatin National Forest, on right bank 0.8 mi (1.3 km) south of Hyalite ranger station, 7.3 mi (11.7 km) south of Bozeman, and at mile 20.8 (33.5 km), revised.

DRAINAGE AREA.--48.2 mi² (124.8 km²).

PERIOD OF RECORD.--August 1895 to October 1896, calendar year 1897 (discharge measurements only), April 1898 to October 1899, June to October 1900, May to September 1902, calendar year 1903 (discharge measurements only), September to December 1904, September 1934 to current year. Monthly discharge only for some periods, published in WSP 1309. Prior to 1934, published as Middle Creek near Bozeman.

REVISED RECORDS.--WSP 84: 1898-99. WSP 1509: 1902, 1939(M). WSP 1559: Drainage area. WSP 1709: 1953, 1956-57.

GAGE.--Water-stage recorder. Datum of gage is 5,539.6 ft (1,688.47 m) National Geodetic Vertical Datum of 1929. Prior to September 1934, nonrecording gages at two sites 0.5 mi (0.8 km) upstream at different datums. Sept. 13, 1934, to May 13, 1948, water-stage recorder at site 0.3 mi (0.5 km) downstream at different datum.

REMARKS.--Records good except those for winter periods and June 6 to Sept. 5, which are poor. Flow regulated by Middle Creek Reservoir (station 06049500) since March 1951. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--48 years (1895-96, 1898-99, 1934-80), 67.0 ft³/s (1.897 m³/s), 18.88 in/yr (480 mm/yr), 48,540 acre-ft/yr (59.8 hm³/yr), adjusted for storage in Middle Creek Reservoir.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 956 ft³/s (27.1 m³/s) June 14, 1898, gage height, 2.10 ft (0.640 m), site and datum then in use; maximum gage height, 4.01 ft (1.222 m) Dec. 15-18, 1940 (backwater from ice), site and datum then in use; minimum daily discharge, 5.0 ft³/s (0.14 m³/s) Jan. 27, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 224 ft³/s (6.34 m³/s) May 27, gage height, 2.42 ft (0.738 m); maximum gage height, 3.21 ft (0.978 m) Jan. 9 (backwater from ice); minimum discharge, 9.0 ft³/s (0.25 m³/s) Feb. 24, gage height, 1.35 ft (0.411 m), but may have been less during period of ice effect.

06050000 DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	29	22	19	20	16	30	102	152	117	95	50
2	33	31	23	19	19	16	22	97	149	115	93	48
3	33	29	24	20	18	16	17	112	141	115	91	48
4	33	29	25	20	18	16	17	117	135	115	88	47
5	33	29	24	21	15	15	18	125	127	117	88	44
6	33	29	21	18	16	15	19	161	125	107	86	40
7	33	29	20	18	16	16	18	161	125	95	88	39
8	33	28	20	17	15	16	19	164	122	93	91	39
9	33	26	20	17	15	16	18	170	120	93	91	37
10	33	26	20	17	15	15	18	173	127	95	88	37
11	32	27	20	18	15	16	19	164	149	93	88	44
12	32	28	20	18	16	15	19	152	158	93	88	45
13	32	29	20	18	16	15	23	149	170	93	86	40
14	32	29	20	18	16	16	29	141	191	91	82	39
15	35	28	19	18	15	16	29	127	201	91	80	38
16	35	27	19	18	15	16	28	127	188	91	80	38
17	34	25	18	18	16	16	31	130	185	91	76	37
18	34	24	18	18	16	16	37	107	182	93	76	37
19	34	24	18	17	16	15	42	95	173	95	76	38
20	33	23	19	17	16	16	58	91	179	93	74	37
21	32	23	19	18	16	16	68	97	185	97	72	41
22	32	24	19	18	16	16	76	125	201	97	70	39
23	33	24	18	18	16	16	97	143	208	95	70	39
24	34	24	19	18	15	16	110	164	195	95	66	41
25	35	24	19	17	17	16	110	173	182	95	58	41
26	35	23	19	15	16	17	112	191	167	95	58	40
27	34	22	19	14	16	17	112	195	143	95	58	40
28	34	22	19	15	16	17	112	201	127	93	55	41
29	34	22	19	17	17	17	115	182	120	95	53	41
30	33	22	19	18	---	24	102	176	117	97	50	41
31	33	---	19	20	---	45	---	158	---	97	50	---
TOTAL	1032	779	618	552	469	531	1525	4470	4744	3037	2365	1226
MEAN	33.3	26.0	19.9	17.8	16.2	17.1	50.8	144	158	98.0	76.3	40.9
MAX	35	31	25	21	20	45	115	201	208	117	95	50
MIN	32	22	18	14	15	15	17	91	117	91	50	37
AC-FT	2050	1550	1230	1090	930	1050	3020	8870	9410	6020	4690	2430
MEAN †	26.4	25.5	21.3	20.3	20.0	22.9	65.2	193	169	73.5	36.3	33.3
CFSM †	.55	.53	.44	.42	.41	.48	1.35	4.00	3.51	1.52	.75	.69
IN †	.63	.59	.51	.49	.45	.55	1.51	4.61	3.92	1.76	.87	.77
AC-FT †	1,620	1,520	1,310	1,250	1,150	1,410	3,880	11,840	10,080	4,520	2,230	1,980

OBSERVED

CAL YR 1979 TOTAL 23691 MEAN 64.9 MAX 333 MIN 18 AC-FT 46,990
WTR YR 1980 TOTAL 21348 MEAN 58.3 MAX 208 MIN 14 AC-FT 42,340

ADJUSTED

CAL YR 1979 TOTAL 23,443 MEAN 64.2 CFSM 1.33 IN 18.09 AC-FT 46,500
WTR YR 1980 TOTAL 21,573 MEAN 58.9 CFSM 1.22 IN 16.65 AC-FT 42,790

† Adjusted for change in contents in Middle Creek Reservoir.

06052500 GALLATIN RIVER AT LOGAN, MT

LOCATION.--Lat 45°53'07", long 111°26'15", in NE¼ sec.35, T.2 N., R.2 E., Gallatin County, Hydrologic Unit 10020008, on right bank at former county road bridge site, 0.2 mi (0.3 km) upstream from present county bridge, 0.5 mi (0.8 km) west of Logan, and at mile 6.3 (10.1 km).

DRAINAGE AREA.--1,795 mi^2 (4,649 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1893 to December 1905, August 1928 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1389: 1898-99, 1903, 1905, 1929(M), 1935-36(M), 1938-39(M), 1941(M). WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,086.42 ft (1,245.541 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 10, 1928, nonrecording gages at several sites within 0.5 mi (0.8 km) of present site at various datums. Aug. 10, 1928, to Oct. 7, 1941, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good except those for the winter period, which are fair. Some regulation by Middle Creek Reservoir (station number 06049500). Diversions for irrigation of about 110,000 acres (445 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--64 years, 1,058 ft^3/s (29.96 m^3/s), 766,500 acre-ft/yr (945 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 9,840 ft^3/s (279 m^3/s) June 21, 1899, gage height, 6.25 ft (1.905 m), site and datum then in use; maximum gage height, 11.88 ft (3.621 m) Feb. 5, 1963, from floodmark (backwater from ice); minimum discharge observed, 130 ft^3/s (3.68 m^3/s) July 19, 1939, gage height, 2.04 ft (0.622 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,550 ft^3/s (129 m^3/s) May 25, gage height, 6.87 ft (2.094 m); maximum gage height, 10.32 ft (3.146 m) ice jam; minimum discharge, 350 ft^3/s (9.91 m^3/s) Aug. 13, gage height, 3.17 ft (0.966 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	539	762	740	704	750	745	790	2530	2830	1770	414	555
2	538	800	768	718	718	754	797	2560	2740	1600	420	580
3	533	836	802	711	738	759	790	2450	2620	1600	409	592
4	533	915	832	697	811	718	797	2620	2400	1770	420	580
5	532	914	822	700	819	690	865	2530	2260	1620	399	561
6	518	907	798	660	819	718	944	2540	2310	1490	384	543
7	522	903	802	600	704	684	912	2900	2460	1330	369	537
8	531	898	785	615	720	677	834	2960	2260	1210	369	611
9	540	903	783	620	697	670	842	3070	2240	1190	379	637
10	537	900	784	660	510	684	873	3250	2360	1110	384	611
11	534	914	760	700	664	842	850	2890	2660	1020	384	704
12	514	890	680	720	759	904	842	2460	3230	873	369	857
13	510	861	700	726	777	775	880	2120	3290	812	379	819
14	510	854	715	717	778	790	985	1860	3190	812	414	819
15	526	849	720	754	765	944	1080	1690	3290	690	414	827
16	628	853	700	754	770	775	1080	1600	3500	617	441	812
17	618	875	740	775	975	711	1090	2000	3160	549	430	812
18	587	918	749	706	1000	725	1220	1990	3100	513	420	768
19	598	935	725	721	996	768	1320	1940	3060	468	468	812
20	626	840	725	713	1040	753	1550	2130	3200	468	519	797
21	669	780	732	709	854	782	1910	2570	3550	474	513	870
22	686	760	746	714	807	782	1900	3200	3400	435	496	830
23	695	780	739	727	798	812	2070	3700	3200	414	513	760
24	700	843	718	734	788	782	2130	3590	2900	420	496	810
25	704	801	725	751	767	790	2270	4060	2700	425	479	800
26	735	720	732	736	775	746	2370	4080	2500	414	474	780
27	766	700	725	739	775	746	2320	3140	2410	404	485	800
28	780	680	663	743	767	761	2280	2730	2180	389	537	800
29	811	620	620	747	743	797	2360	2520	1930	374	549	815
30	785	680	600	746	---	888	2480	2700	1810	369	531	820
31	762	---	660	747	---	790	---	2890	---	399	543	---
TOTAL	19067	24891	22790	22064	22904	23762	41431	83270	82740	26029	13801	21919
MEAN	615	830	735	712	790	767	1381	2686	2758	840	445	731
MAX	811	935	832	775	1040	944	2480	4080	3550	1770	549	870
MIN	510	620	600	600	510	670	790	1600	1810	369	369	537
AC-FT	37820	49370	45200	43760	45430	47130	82180	165200	164100	51630	27370	43480

CAL YR 1979 TOTAL 384954 MEAN 1055 MAX 4000 MIN 382 AC-FT 763600
WTR YR 1980 TOTAL 404668 MEAN 1106 MAX 4080 MIN 369 AC-FT 802700

06052500 GALLATIN RIVER AT LOGAN, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-52, 1956-57, 1965, 1979 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August 1979 to current year.

INSTRUMENTATION.--Temperature recorder since August 24, 1979.

EXTREMES FOR PERIOD OF RECORD.--
WATER TEMPERATURES: Maximum, 23.0°C Aug. 1, 2, 1980; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 23.0°C Aug. 1, 2; minimum, 0.0°C on many days during Novmber to February.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	13.0	9.5	11.5	5.5	4.0	4.5	.5	.0	.0	2.5	1.0	1.5
2	13.0	10.5	11.5	4.5	2.0	3.5	2.0	.0	1.0	3.0	2.0	2.5
3	12.0	8.0	10.0	5.5	4.0	4.5	4.0	2.0	3.0	2.0	1.5	2.0
4	12.5	7.5	10.0	6.0	4.5	5.0	4.0	2.5	3.0	1.5	.5	1.0
5	12.5	9.0	10.5	6.0	4.5	5.0	3.0	2.0	2.5	3.0	.0	1.5
6	13.5	9.0	11.0	6.0	3.5	4.5	4.0	3.0	3.5	.0	.0	.0
7	13.0	10.5	11.5	5.0	2.5	4.0	4.0	3.0	3.5	---	---	---
8	11.5	7.5	9.5	5.0	3.5	4.0	4.5	3.0	3.5	---	---	---
9	10.5	6.5	8.5	4.5	3.0	3.5	4.0	3.0	3.5	---	---	---
10	10.0	7.5	8.5	4.5	3.5	4.0	4.0	.5	2.5	---	---	---
11	12.0	8.0	10.0	4.5	3.5	4.0	.5	.0	.0	---	---	---
12	12.5	8.5	10.5	4.0	2.0	3.0	.0	.0	.0	---	---	---
13	12.5	8.5	10.5	4.0	1.5	2.5	1.0	.0	.5	---	---	---
14	11.0	9.0	10.0	3.5	1.0	2.5	2.5	1.0	1.5	---	---	---
15	10.5	9.5	10.0	3.5	1.0	2.5	2.0	.0	.5	3.0	---	---
16	11.0	8.5	10.0	3.0	1.0	2.0	.0	.0	.0	2.0	1.0	1.5
17	10.0	8.5	9.5	5.0	3.5	4.5	.5	.0	.5	2.0	.5	1.0
18	8.5	7.0	8.0	5.5	4.5	5.0	3.0	.5	1.5	1.0	.0	.5
19	9.5	7.5	8.5	4.0	2.0	3.0	2.0	1.0	1.5	.0	.0	.0
20	7.5	6.5	6.5	2.0	0.0	.5	3.5	2.0	3.0	.0	.0	.0
21	8.0	5.5	6.5	.0	.0	.0	3.5	2.5	3.0	.5	.0	.0
22	7.5	5.5	6.5	.0	.0	.0	3.5	2.5	3.0	.0	.0	.0
23	8.5	7.0	7.5	.5	.0	.0	3.0	2.0	2.5	.5	.0	.0
24	9.5	8.0	8.5	.5	.0	.5	2.0	.5	1.5	2.0	.0	1.0
25	9.5	7.5	8.5	2.0	.5	.5	3.0	2.0	2.5	.5	.0	.0
26	9.0	7.0	8.5	1.5	.0	.5	3.0	2.0	2.5	.0	.0	.0
27	7.5	5.0	6.5	1.5	.0	1.0	3.5	2.0	3.0	.0	.0	.0
28	8.0	7.0	7.5	.5	.0	.0	1.5	.0	.5	.0	.0	.0
29	7.0	6.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	6.5	4.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	5.5	3.0	4.5	---	---	---	1.0	.0	.5	.0	.0	.0
MONTH	13.5	3.0	9.0	6.0	.0	2.5	4.5	.0	1.5	3.0	.0	.5

06052500 GALLATIN RIVER AT LOGAN, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN FEBRUARY	MEAN	MAX	MIN MARCH	MEAN	MAX	MIN APRIL	MEAN	MAX	MIN MAY	MEAN
1	.0	.0	.0	6.5	3.0	4.5	8.5	5.0	6.5	13.5	7.0	10.0
2	.0	.0	.0	5.5	2.5	4.0	8.5	5.0	7.0	14.5	9.0	11.5
3	.0	.0	.0	5.0	3.0	4.5	10.0	5.0	7.5	12.5	9.5	11.5
4	.0	.0	.0	2.5	.5	1.0	10.5	5.0	8.0	13.5	8.0	11.0
5	.0	.0	.0	1.0	.5	.5	9.5	6.5	8.0	15.5	10.0	12.5
6	.0	.0	.0	2.5	.5	1.0	8.5	6.5	7.5	14.0	11.0	12.5
7	2.0	.0	.5	4.0	1.0	2.5	8.0	5.0	6.5	13.5	9.5	11.5
8	2.0	.5	1.5	5.0	1.5	3.0	8.5	4.0	6.5	11.5	9.0	10.5
9	1.5	.0	.5	5.5	3.5	4.5	7.5	6.0	7.0	12.5	9.5	10.5
10	1.0	.0	.5	9.0	4.5	6.5	8.5	5.0	6.5	10.5	---	---
11	2.5	.0	1.0	7.5	5.0	6.0	8.5	6.0	7.0	---	---	---
12	2.0	1.0	1.5	6.0	3.5	5.0	11.0	6.0	8.5	---	---	---
13	1.5	.0	.5	5.5	3.0	4.5	12.5	6.5	9.5	---	---	---
14	.0	.0	.0	6.5	4.0	5.0	12.0	8.0	10.0	---	---	---
15	.0	.0	.0	5.5	4.0	5.0	11.0	7.5	9.5	---	---	---
16	.0	.0	.0	4.5	2.5	4.0	11.5	5.5	8.5	---	---	---
17	.5	.0	.0	7.0	2.5	4.5	12.5	7.5	10.0	---	---	---
18	2.0	.0	1.0	7.0	4.5	6.0	12.5	9.0	10.5	---	---	---
19	5.0	2.0	3.5	7.0	5.0	5.5	13.0	8.5	11.0	---	---	---
20	4.0	2.5	3.0	8.5	4.0	6.5	13.0	9.5	11.5	---	---	---
21	4.5	2.0	3.0	7.0	5.5	6.0	12.0	10.0	11.0	---	---	---
22	5.0	2.5	3.5	8.5	4.0	6.5	11.5	9.0	10.5	---	---	---
23	5.5	3.0	4.0	7.0	5.5	6.5	12.0	8.5	10.0	---	---	---
24	4.5	1.5	3.0	7.0	3.5	5.5	13.5	9.5	11.5	---	---	---
25	4.5	1.0	3.0	6.0	4.5	5.5	13.5	9.5	---	---	---	---
26	5.5	2.5	4.0	8.0	3.0	5.5	13.5	9.0	11.0	---	---	---
27	5.5	3.5	4.5	8.0	5.0	6.5	14.0	9.0	11.5	---	---	---
28	4.5	2.0	3.5	9.0	5.0	7.0	14.0	9.5	12.0	---	---	---
29	4.5	3.0	3.5	10.0	6.0	8.0	13.5	9.5	11.5	---	---	---
30	---	---	---	8.0	3.5	5.0	12.0	8.5	10.0	13.0	---	---
31	---	---	---	7.5	2.0	5.0	---	---	---	12.5	9.5	11.0
MONTH	5.5	.0	1.5	10.0	.5	5.0	14.0	4.0	9.5	15.5	7.0	11.5

DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN	MAX	MIN AUGUST	MEAN	MAX	MIN SEPTEMBER	MEAN
1	13.5	9.0	11.5	18.5	12.5	15.0	23.0	17.5	20.0	17.0	12.0	14.0
2	12.5	10.5	11.5	20.0	14.5	17.0	23.0	17.0	20.0	15.0	13.0	13.5
3	13.5	10.5	12.0	18.0	15.5	16.0	20.0	16.5	18.0	16.0	11.5	13.5
4	12.0	10.0	10.5	---	12.5	---	20.0	13.5	16.5	17.0	11.5	14.0
5	13.5	9.5	11.5	---	---	---	20.0	14.0	17.0	17.5	12.0	14.5
6	12.0	10.0	11.0	---	---	---	21.0	14.0	17.0	18.0	13.5	15.5
7	14.0	9.5	11.5	---	---	---	21.5	15.0	18.0	17.0	15.0	16.0
8	16.5	10.0	13.0	---	---	---	21.0	15.5	18.0	15.5	14.0	14.5
9	18.0	12.5	15.5	---	---	---	21.5	16.0	18.5	17.0	13.0	14.5
10	18.0	13.5	16.0	---	---	---	21.5	15.0	18.0	15.5	14.0	14.5
11	16.0	13.0	14.5	---	---	---	21.5	15.0	18.0	15.0	13.5	14.0
12	16.0	11.0	13.0	---	---	---	22.0	16.0	18.5	16.5	13.0	14.5
13	16.0	10.5	13.0	---	---	---	20.5	16.0	18.0	15.5	13.5	14.5
14	13.5	11.0	12.5	---	---	---	21.5	16.0	18.5	16.0	12.5	14.0
15	11.5	10.5	11.0	---	---	---	19.0	16.5	17.5	14.5	12.5	13.5
16	16.0	9.5	12.5	---	---	---	20.5	14.5	17.0	14.0	11.0	12.5
17	18.0	12.5	15.0	---	---	---	20.0	15.5	18.0	15.5	11.5	13.5
18	18.0	13.5	15.5	---	---	---	17.5	14.0	15.5	14.0	12.0	13.0
19	18.0	13.0	15.5	---	---	---	17.5	13.0	15.0	14.0	11.5	12.5
20	17.5	13.5	15.5	---	---	---	17.5	14.0	15.5	12.5	10.5	11.5
21	18.5	13.0	15.5	---	---	---	19.5	13.0	16.0	12.5	10.0	11.0
22	17.5	14.0	16.0	---	---	---	17.0	15.0	15.5	12.5	8.5	10.5
23	15.5	13.0	14.0	---	---	---	19.0	13.0	15.5	13.0	10.5	11.5
24	17.0	11.0	14.0	---	---	---	19.5	14.0	16.5	13.0	9.5	11.5
25	19.0	12.5	15.5	---	---	---	18.5	13.0	16.0	13.5	9.5	11.5
26	19.5	14.0	16.5	---	---	---	20.0	14.0	17.0	13.5	9.5	11.5
27	16.5	13.0	14.0	---	---	---	17.0	14.5	16.0	15.0	10.5	12.5
28	17.5	11.0	14.0	---	---	---	16.5	12.5	14.5	13.0	11.0	12.0
29	18.5	13.0	16.0	---	---	---	17.0	11.5	14.5	14.0	9.5	12.0
30	17.0	14.0	15.0	22.0	---	---	15.5	12.0	14.0	14.0	11.0	12.5
31	---	---	---	22.5	15.5	19.0	14.5	12.0	13.0	---	---	---
MONTH	19.5	9.0	14.0	22.5	12.5	17.0	23.0	11.5	17.0	18.0	8.5	13.0
YEAR	23.0	.0	8.0									

06054500 MISSOURI RIVER AT TOSTON, MT

LOCATION.--Lat 46°08'46", long 111°25'18", in SE1/4 NW1/4 sec.36, T.5 N., R.2 E., Broadwater County, Hydrologic Unit 10030101, on left bank 2.2 mi (3.5 km) southeast of Toston, 4.8 mi (7.7 km) upstream from Crow Creek, 7.8 mi (12.6 km) downstream from Sixteenmile Creek, and at mile 2,296.1 (3,694.4 km).

DRAINAGE AREA.--14,669 mi^2 (37,993 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1890 to February 1891, April 1910 to December 1916, April 1941 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 3,905.68 ft (1,190.451 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 20, 1916, nonrecording gages at site 2.5 mi (4.0 km) downstream at different datums.

REMARKS.--Water-discharge records good except those for winter period, which are fair. Some regulation by six reservoirs on tributaries and Clark Canyon Reservoir (station 06015300). Diversions for irrigation of about 555,400 acres (2,250 km^2) of which 12,000 acres (48.6 km^2) lies below station.

AVERAGE DISCHARGE.--45 years, 5,360 ft^3/s (151.8 m^3/s), 3,883,000 acre-ft/yr (4.79 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,000 ft^3/s (906 m^3/s) June 6, 1948, gage height, 11.77 ft (3.587 m); minimum, 562 ft^3/s (15.9 m^3/s) Apr. 30, 1941, gage height, 1.68 ft (0.512 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,800 ft^3/s (532 m^3/s) May 25, gage height, 9.26 ft (2.822 m); minimum, 1,170 ft^3/s (33.1 m^3/s) Jan. 9, gage height, 2.59 ft (0.789 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2330	4260	3120	3150	2740	4760	3790	10100	12200	7780	2150	3190
2	2340	4350	3570	3300	3210	4500	3910	10500	12100	7330	2320	3200
3	2410	4410	4230	3320	3290	4290	4000	9940	12200	7010	2320	3260
4	2290	4480	4400	3450	3390	3810	3980	9870	12900	8000	2320	3260
5	2420	4510	4400	3540	3390	2820	3910	9780	13500	9060	2270	3240
6	2420	4540	4240	2400	3340	3120	3990	9670	13800	9270	2160	3150
7	2400	4560	4140	1970	3320	3540	4120	10100	13700	8560	2090	3130
8	2370	4550	4030	1540	3390	4030	4160	10700	13500	7590	2010	3240
9	2450	4580	3960	1350	3540	3920	4130	11500	12800	6590	1960	3590
10	2490	4560	3940	1860	3480	3980	4050	12900	12400	6820	1940	3380
11	2520	4510	3700	2050	3460	4090	3990	13400	12600	6660	1960	3540
12	2510	4440	3280	2530	3500	4200	3970	13000	13700	5990	1950	4150
13	2510	4380	2860	3310	3390	3870	3970	11800	14700	5450	1900	4940
14	2460	4220	3490	3680	2910	3780	4070	9850	14800	5280	1900	5080
15	2510	4150	3350	4180	2720	4010	4270	8420	15100	5100	1940	5180
16	2880	4160	2280	4220	2770	3870	4240	7610	15700	4640	2020	5160
17	3210	4180	2320	3950	2650	3720	4460	7970	15800	4050	2180	5010
18	3310	4290	3470	3770	2840	3510	4690	8350	15600	3520	2300	4800
19	3250	4400	3850	3400	3650	3540	5060	8280	14500	3360	2320	4800
20	3330	4350	4220	3100	4460	3520	5710	7970	14000	3200	2450	4790
21	3470	4090	4130	2730	5010	3530	6960	8120	14000	3120	2610	4940
22	3650	3970	4020	3110	4900	3650	8290	9340	14000	2970	2680	5050
23	3820	3540	3810	3310	4610	3810	9320	11000	13700	2770	2790	5030
24	3950	3790	3640	3420	4320	3790	9380	12200	13600	2350	2780	5040
25	3990	4050	3700	3470	4100	3780	8950	14700	13200	2340	2700	4930
26	4040	3970	3530	2860	4090	3760	9550	16700	12400	2270	2680	4910
27	4040	3980	3450	2350	4400	3720	9850	16000	11300	2150	2690	4860
28	4090	3840	3320	2190	5320	3750	9620	14300	10400	2120	2790	4820
29	4760	3740	3120	1980	5110	3750	9440	13000	9300	2050	3030	4670
30	4250	3370	2780	1820	---	3860	9520	12600	8340	2000	3100	4640
31	4360	---	2810	2150	---	3820	---	12500	---	2020	3110	---
TOTAL	96830	126220	111160	89460	107300	118100	175350	342170	395840	151420	73420	128980
MEAN	3124	4207	3586	2886	3700	3810	5845	11040	13190	4885	2368	4299
MAX	4760	4580	4400	4220	5320	4760	9850	16700	15800	9270	3110	5180
MIN	2290	3370	2280	1350	2650	2820	3790	7610	8340	2000	1900	3130
AC-FT	192100	250400	220500	177400	212800	234300	347800	678700	785100	300300	145600	255800

CAL YR 1979 TOTAL 1627430 MEAN 4459 MAX 16400 MIN 1630 AC-FT 3228000
WTR YR 1980 TOTAL 1916250 MEAN 5236 MAX 16700 MIN 1350 AC-FT 3801000

06054500 MISSOURI RIVER AT TOSTON, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-53, 1965, 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1973 to current year.
WATER TEMPERATURES: May 1949 to June 1953, October 1973 to current year.

INSTRUMENTATION.--Temperature recorder since July 6, 1977.

REMARKS.--Sampling location moved in October 1978 from old bridge on U.S. Highway 287, at Toston, to cableway, 2.4 mi (2.9 km) upstream.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 524 micromhos Mar. 4, 1978; minimum daily, 159 micromhos May 28, 1979.
WATER TEMPERATURES: Maximum, 25.5°C July 25, 1949, July 31, 1951, July 23, 1952, July 19, 1979; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 483 micromhos Feb. 2; minimum daily, 205 micromhos May 25.
WATER TEMPERATURES: Maximum, 24.0°C July 23; minimum, 0.0°C on many days during November to March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
OCT 02...	1115	2300	1	395	8.6	17.0	13.0	1.9	10.3	112	K4
NOV 08...	1130	4560	1	411	8.6	5.0	3.5	2.3	12.6	110	54
DEC 05...	1130	4360	1	411	8.4	6.0	.5	1.9	13.0	104	50
JAN 11...	1130	2100	1	475	8.2	-5.0	.0	1.9	13.4	106	37
FEB 05...	1130	3360	1	441	8.2	4.0	.0	9.0	13.4	104	74
MAR 20...	1330	3520	0	424	8.3	12.5	4.5	6.5	12.0	106	K1
APR 10...	1400	4020	2	402	8.6	8.0	6.5	4.0	11.0	102	K9
MAY 07...	1100	9880	1	228	8.3	13.0	13.5	19	9.4	102	110
20...	1030	7930	0	237	7.9	21.0	15.5	17	9.6	109	60
JUN 25...	1000	13100	1	251	7.8	18.0	16.5	12	8.8	102	96
JUL 29...	1330	2050	1	362	8.6	31.0	22.5	2.3	8.5	112	K15
AUG 26...	1100	2690	0	395	8.8	19.0	17.0	4.0	9.9	117	K8
SEP 17...	1200	4990	1	427	8.7	19.0	14.0	4.5	8.5	95	94

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)
OCT 02...	K2	150	13	40	13	24	.8	4.0	140	42	10
NOV 08...	K15	160	16	41	13	24	.8	4.2	140	46	11
DEC 05...	65	150	9	40	12	23	.8	4.2	140	44	13
JAN 11...	36	170	0	45	14	27	.9	4.7	170	50	15
FEB 05...	46	160	1	43	13	24	.8	4.3	160	48	13
MAR 20...	K21	160	21	43	13	23	.8	3.9	140	45	13
APR 10...	K5	150	9	40	12	24	.9	4.1	140	45	16
MAY 07...	28	85	10	23	6.7	13	.6	2.5	75	21	6.6
20...	63	91	2	25	6.9	11	.5	2.7	89	24	5.5
JUN 25...	70	100	0	29	7.6	12	.5	2.6	130	22	5.9
JUL 29...	K8	130	13	35	11	19	.7	3.8	130	34	11
AUG 26...	K7	150	13	40	13	23	.8	4.4	140	41	12
SEP 17...	K8	160	3	42	14	23	.8	4.5	160	45	13

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)
OCT 02...	1.2	23	239	241	.33	1480	.02	.01	.00	.00
NOV 08...	1.4	24	240	250	.33	2960	.15	.14	.02	.04
DEC 05...	1.2	24	233	247	.32	2740	.24	.22	.01	.06
JAN 11...	1.5	29	283	290	.38	1610	.32	.31	.01	.01
FEB 05...	1.3	27	285	272	.39	2590	.35	.36	.07	.07
MAR 20...	1.2	24	277	251	.38	2630	.20	.21	.06	.06
APR 10...	1.5	27	256	254	.35	2780	--	.13	.08	.00
MAY 07...	.4	20	152	139	.21	4060	.08	.08	.08	.06
20...	.5	18	152	147	.21	3250	--	--	--	.00
JUN 25...	.6	18	150	164	.20	5310	.06	.06	.04	.04
JUL 29...	1.2	20	227	207	.31	1260	.00	.00	.00	.01
AUG 26...	1.2	23	238	242	.32	1730	.00	.00	.08	.05
SEP 17...	1.0	23	271	262	.37	3650	.03	.04	.01	.02

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N) (00607)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)
OCT 02...	.50	.31	.50	.31	.00	.01	2.0	--	--
NOV 08...	.53	.39	.55	.43	.02	.00	--	--	.4
DEC 05...	.50	.46	.51	.52	.05	.00	2.9	--	--
JAN 11...	.90	.90	.91	.91	.03	.02	--	--	--
FEB 05...	.25	.17	.32	.24	.04	.02	--	4.5	.3
MAR 20...	.50	.20	.56	.26	.05	.03	3.7	--	--
APR 10...	.41	.42	.49	.42	.05	.03	7.3	--	--
MAY 07...	.78	.47	.86	.53	.10	.03	--	7.2	.4
20...	--	--	--	--	--	.06	--	--	--
JUN 25...	.96	.69	1.0	.73	.10	.02	6.8	--	--
JUL 29...	1.1	.42	1.1	.43	.07	.03	6.9	--	--
AUG 26...	.64	.42	.72	.47	.03	.01	--	5.0	.6
SEP 17...	.93	.24	.94	.26	.06	.03	7.6	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
NOV 08...	1130	30	28	200	60	0	< 1	0	0	0
FEB 05...	1130	30	30	100	60	0	< 1	0	0	0
MAR 20...	1330	--	--	--	--	--	--	--	--	--
MAY 07...	1100	18	16	200	40	0	< 1	0	0	0
20...	1030	11	11	100	40	0	1	0	0	0
JUN 25...	1000	--	--	--	--	--	--	--	--	--
AUG 26...	1100	45	45	100	60	0	< 1	0	0	1
SEP 17...	1200	--	--	--	--	--	--	--	--	--

DATE	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
NOV 08...	< 3	0	0	340	10	2	0	--	50	8
FEB 05...	< 3	6	1	160	20	4	0	--	10	6
MAR 20...	--	--	--	--	--	--	--	--	--	--
MAY 07...	< 3	8	4	1700	70	5	1	--	100	4
20...	1	11	5	1100	80	3	2	30	70	6
JUN 25...	--	--	--	--	--	--	--	--	--	--
AUG 26...	< 3	10	3	290	< 10	4	0	--	50	10
SEP 17...	--	--	--	--	--	--	--	--	--	--

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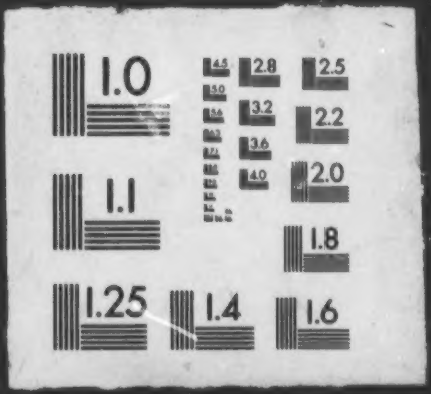
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06054500 MISSOURI RIVER AT TOSTON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV										
08...	.1	.0	3	0	0	0	0	0	30	< 3
FEB										
05...	.0	.1	2	0	0	0	0	0	10	6
MAR										
20...	--	--	--	--	--	--	4	--	--	--
MAY										
07...	.0	.1	3	0	0	0	0	0	40	< 3
20...	.1	.0	2	1	0	0	0	0	40	4
JUN										
25...	--	--	--	--	--	--	0	--	--	--
AUG										
26...	.2	.0	4	0	0	0	0	0	20	4
SEP										
17...	--	--	--	--	--	--	0	--	--	--

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)
NOV												
08...	1130	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB												
05...	1130	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	PARA-THION, TOTAL (UG/L) (39540)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	SILVEX, TOTAL (UG/L) (39760)
NOV												
08...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB												
05...	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980 ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	399	421	442	430	477	396	417	249	271	267	370	400
2	400	412	440	431	483	390	413	257	285	269	369	400
3	405	410	438	433	450	432	412	249	270	275	361	400
4	407	410	448	428	448	450	419	247	267	283	372	393
5	409	410	415	421	440	441	420	250	268	285	371	399
6	408	411	415	423	442	440	421	246	284	270	377	398
7	409	409	418	423	441	430	421	239	280	276	379	393
8	412	411	420	438	442	429	421	232	280	282	380	400
9	416	404	420	437	437	430	419	228	280	281	381	392
10	411	399	411	450	436	427	419	224	285	300	384	396
11	410	401	420	450	436	424	420	233	280	287	381	392
12	409	401	418	450	433	424	420	237	262	296	380	394
13	409	403	440	448	429	447	421	231	254	304	389	418
14	417	405	441	442	431	429	414	231	256	303	388	433
15	412	407	441	431	436	424	420	246	251	321	389	422
16	410	407	440	427	438	438	410	249	259	320	388	418
17	411	404	450	422	440	420	406	246	260	320	382	419
18	427	401	450	428	443	425	402	236	260	332	389	419
19	422	399	420	429	447	430	382	237	254	328	398	410
20	431	400	420	434	437	427	380	250	257	333	409	418
21	433	400	415	440	410	428	346	243	249	349	402	419
22	431	416	422	438	400	425	310	231	249	343	400	417
23	429	419	416	441	401	421	281	220	250	346	408	418
24	430	419	417	441	407	420	272	211	256	349	405	401
25	429	416	415	442	407	422	270	205	250	350	410	400
26	427	398	418	445	406	422	272	234	251	349	410	400
27	426	418	425	448	406	420	269	270	252	351	411	398
28	427	420	429	476	381	421	268	265	259	355	411	392
29	428	421	434	476	378	421	251	252	265	366	418	399
30	427	431	430	476	---	418	260	250	266	357	410	391
31	426	---	449	474	---	412	---	251	---	356	410	---
MEAN	418	409	428	441	430	425	369	240	264	316	391	405

WTR YR 1980 MEAN 378 MAX 483 MIN 205

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	14.5	12.5	14.0	4.5	4.0	4.0	.5	.0	.0	.5	.0	.5
2	13.5	12.5	13.0	3.5	3.0	3.5	.5	.0	.5	.5	.0	.5
3	12.5	11.0	12.0	4.0	3.0	4.0	.5	.0	.5	.5	.5	.5
4	12.5	11.0	11.5	4.5	4.0	4.0	.5	.0	.5	.5	.0	.5
5	13.0	11.5	12.0	4.0	4.0	4.0	.5	.5	.5	.5	.0	.5
6	13.5	12.0	12.5	4.0	3.5	4.0	1.0	.5	.5	.0	.0	.0
7	13.0	12.5	13.0	3.5	3.0	3.5	1.5	1.0	1.0	.0	.0	.0
8	12.5	10.5	12.0	3.5	3.0	3.5	2.0	1.0	1.5	.0	.0	.0
9	10.5	8.5	9.0	3.5	3.0	3.0	3.0	2.0	2.5	.0	.0	.0
10	10.5	9.0	9.5	3.0	3.0	3.0	3.0	1.0	2.5	.0	.0	.0
11	11.0	10.0	10.5	3.5	3.0	3.0	1.0	.0	.5	.0	.0	.0
12	12.5	11.0	11.5	2.5	2.0	2.5	.0	.0	.0	.5	.0	.0
13	12.5	11.0	11.5	2.5	2.0	2.0	.5	.0	.5	.5	.0	.0
14	11.5	11.0	11.5	2.0	1.5	2.0	.5	.0	.5	.5	.0	.5
15	11.5	10.5	11.0	1.5	1.0	1.5	.5	.0	.0	.5	.0	.0
16	11.0	10.5	10.5	1.5	1.0	1.5	.0	.0	.0	.5	.0	.0
17	11.0	10.0	11.0	4.0	1.5	3.0	.0	.0	.0	.5	.0	.0
18	10.0	8.5	9.5	4.5	4.0	4.0	.0	.0	.0	.0	.0	.0
19	9.0	8.5	8.5	4.0	2.5	3.5	---	---	---	.0	.0	.0
20	8.5	7.0	8.0	2.5	.5	1.5	.5	---	---	.0	.0	.0
21	7.0	6.5	6.5	.0	.0	.0	.5	.0	.5	.5	.0	.0
22	7.0	6.5	7.0	.0	.0	.0	.5	.5	.5	.5	.0	.0
23	7.0	6.5	7.0	.5	.0	.5	.5	.5	.5	.5	.0	.0
24	8.5	7.0	8.0	.5	.0	.5	.5	.5	.5	.5	.0	.5
25	8.5	8.0	8.0	.5	.0	.0	1.0	.5	1.0	.0	.0	.0
26	8.5	8.0	8.0	.5	.0	.0	1.5	1.0	1.0	.0	.0	.0
27	8.0	6.5	7.0	.5	.0	.0	1.5	1.0	1.0	.0	.0	.0
28	7.5	6.5	7.0	.5	.0	.0	1.0	.0	.5	.0	.0	.0
29	7.0	6.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	6.0	5.0	5.5	.5	.0	.0	.5	.0	.5	.0	.0	.0
31	4.5	4.0	4.5	---	---	---	.5	.0	.5	.0	.0	.0
MONTH	14.5	4.0	9.5	4.5	.0	2.0	3.0	.0	.5	.5	.0	.0

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN FEBRUARY	MEAN	MAX	MIN MARCH	MEAN	MAX	MIN APRIL	MEAN	MAX	MIN MAY	MEAN
1	.5	.0	.0	1.5	.5	1.0	5.0	4.0	5.0	13.0	10.0	11.0
2	.0	.0	.0	2.5	1.5	2.0	6.0	4.5	5.0	14.0	12.0	13.0
3	.0	.0	.0	3.0	1.0	2.5	6.5	5.0	5.5	14.0	12.5	13.5
4	.5	.0	.0	1.0	.0	.5	7.5	6.0	6.5	14.0	12.0	12.5
5	.5	.0	.5	1.0	.0	.5	8.0	6.5	7.5	15.0	13.5	14.0
6	.5	.5	.5	1.0	.0	.5	8.5	7.5	7.5	15.5	14.5	15.0
7	.5	.5	.5	1.0	.0	.5	7.0	6.0	6.5	15.0	13.5	14.0
8	1.0	.0	.5	1.0	.0	.5	6.5	5.0	6.0	14.0	12.5	13.5
9	.5	.0	.5	2.0	.5	1.0	7.5	6.5	7.0	13.5	12.5	13.0
10	.5	.0	.5	4.0	2.0	3.0	7.0	5.5	6.5	13.5	10.0	11.5
11	1.0	.0	.5	5.5	4.0	5.0	8.0	6.5	7.0	10.5	9.0	9.5
12	.5	.0	.5	4.5	3.5	4.0	8.5	6.5	7.5	11.0	9.5	10.0
13	.5	.0	.5	3.5	3.0	3.5	10.0	8.5	9.0	12.0	10.0	11.0
14	.5	.0	.0	4.5	3.0	3.5	11.5	10.0	10.5	13.0	11.0	12.0
15	.5	.0	.5	4.5	3.5	4.5	11.0	9.5	10.5	14.0	12.5	13.0
16	.5	.0	.5	3.5	2.5	3.0	10.0	8.5	9.0	14.0	13.0	13.5
17	1.0	.0	.5	4.0	2.5	3.0	11.5	10.0	10.5	13.0	12.0	12.5
18	1.0	.5	.5	5.0	3.5	4.0	12.0	11.0	11.5	15.5	13.0	13.5
19	1.0	.5	.5	5.0	4.0	4.5	12.0	11.5	12.0	16.5	15.0	15.5
20	.5	.0	.5	---	4.0	---	13.5	12.0	12.5	17.0	15.5	16.0
21	1.0	.0	.5	---	---	---	13.5	12.5	13.0	18.0	16.5	17.0
22	1.0	.0	.5	---	---	---	12.5	11.0	12.0	18.0	17.0	17.5
23	1.0	.0	.5	---	---	---	12.0	10.5	11.5	17.5	13.5	15.5
24	1.0	.0	.5	5.0	4.5	---	13.5	11.5	12.5	13.5	12.0	12.5
25	1.0	.0	.5	5.0	4.0	4.5	14.0	12.5	13.5	12.5	9.0	11.0
26	1.0	.5	.5	5.0	3.5	4.5	14.0	12.5	13.0	10.0	8.0	9.0
27	1.0	.5	.5	5.5	4.5	5.0	14.0	12.5	13.5	11.5	10.0	10.5
28	1.0	.0	.5	6.5	4.5	5.5	14.5	13.5	14.0	12.5	11.0	11.5
29	.5	.5	.5	7.5	6.0	7.0	15.0	14.0	14.5	13.0	11.5	12.0
30	---	---	---	6.5	3.5	5.5	14.5	11.0	13.0	13.5	12.0	12.5
31	---	---	---	4.5	3.0	3.5	---	---	---	13.5	12.0	12.5
MONTH	1.0	.0	.5	7.5	.0	3.0	15.0	4.0	10.0	18.0	8.0	13.0

DAY		JUNE			JULY			AUGUST			SEPTEMBER	
1	14.0	12.0	13.0	18.5	16.0	17.0	22.5	20.5	21.5	15.5	14.5	15.0
2	14.0	13.0	13.5	20.0	18.0	19.0	22.5	21.0	21.5	16.0	15.0	15.5
3	14.0	12.5	13.0	20.0	18.0	19.0	21.0	19.0	20.5	15.0	14.0	14.5
4	13.5	12.0	12.5	18.5	17.0	18.0	19.0	17.5	18.0	15.5	14.5	15.0
5	13.0	12.0	12.5	19.0	18.5	18.5	20.0	17.5	18.5	16.0	14.5	15.5
6	13.0	12.0	12.5	20.0	18.0	19.0	20.0	18.0	19.0	17.0	15.5	16.5
7	13.5	11.0	12.0	21.0	19.5	20.0	20.0	18.0	19.0	17.5	17.0	17.0
8	15.5	12.5	13.5	21.0	20.0	20.5	21.0	18.0	19.5	17.0	16.0	16.5
9	17.5	15.0	16.0	20.5	19.0	19.5	21.5	19.0	20.0	16.0	15.5	15.5
10	18.0	16.5	17.5	21.0	20.0	20.5	21.0	19.0	20.0	16.5	16.0	16.5
11	18.0	17.0	17.0	21.0	19.5	20.0	21.0	19.0	20.0	16.5	15.5	16.0
12	16.5	15.0	15.5	21.0	19.0	20.0	20.5	18.5	19.5	16.0	15.0	15.5
13	16.0	14.0	15.0	19.0	18.5	19.0	20.5	18.5	19.0	16.5	15.5	16.0
14	16.0	15.0	15.0	19.0	18.0	18.0	21.5	18.5	20.0	15.5	15.0	15.0
15	15.0	13.5	14.0	18.5	17.5	18.0	21.0	19.5	20.0	16.0	14.0	15.5
16	16.0	12.5	14.0	19.5	18.5	19.0	20.5	18.5	19.5	14.0	13.0	13.5
17	18.0	15.5	16.5	20.0	19.5	20.0	20.5	19.0	19.5	14.5	13.5	14.0
18	19.0	17.5	18.0	20.0	19.0	19.5	19.5	17.5	18.5	14.5	14.0	14.0
19	19.5	17.5	18.5	20.5	19.5	20.0	17.0	15.5	16.5	13.5	13.5	13.5
20	19.5	18.0	18.5	20.0	19.0	19.5	17.5	16.0	16.5	13.5	13.0	13.0
21	19.5	17.5	18.0	21.5	20.0	21.0	18.0	16.0	17.0	12.5	12.0	12.5
22	19.5	18.0	18.5	23.0	21.5	22.5	18.0	17.0	17.5	12.0	11.5	11.5
23	19.0	16.5	17.5	24.0	22.5	23.0	17.0	16.0	16.5	12.0	11.5	12.0
24	17.5	15.0	16.0	23.5	21.5	22.5	18.5	17.0	17.5	12.0	11.5	12.0
25	18.5	16.5	17.5	23.0	21.0	22.0	18.0	16.5	17.0	12.0	11.5	11.5
26	19.0	17.5	18.5	23.5	22.0	22.5	18.5	16.5	17.5	12.5	12.0	12.0
27	19.0	16.0	17.0	23.5	21.5	22.5	18.5	17.0	18.0	13.5	12.5	13.0
28	17.5	14.5	16.0	23.5	21.5	22.0	17.0	15.5	16.5	13.5	12.5	13.0
29	18.5	16.5	17.5	23.5	21.5	22.0	16.5	15.5	15.5	13.0	12.0	12.5
30	18.5	16.5	17.5	23.0	20.5	21.5	16.0	15.5	15.5	13.5	13.0	13.5
31	---	---	---	22.5	20.5	21.0	15.5	14.5	15.0	---	---	---
MONTH	19.5	11.0	15.5	24.0	16.0	20.0	22.5	14.5	18.5	17.5	11.5	14.0
YEAR	24.0	.0	9.0									

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 02...	1115	13.0	2300	6	37	92
NOV 08...	1130	3.5	4560	20	246	94
DEC 05...	1130	.5	4360	61	718	67
JAN 11...	1130	.0	2100	6	34	81
FEB 05...	1130	.0	3360	7	64	81
MAR 20...	1330	4.5	3520	24	228	90
APR 10...	1400	6.5	4020	23	250	90
MAY 07...	1100	13.5	9880	70	1870	84
20...	1030	15.5	7930	52	1110	91
JUN 25...	1000	16.5	13100	62	2190	74
JUL 29...	1330	22.5	2050	17	94	94
AUG 26...	1100	17.0	2690	20	145	95
SEP 17...	1200	14.0	4990	23	310	93

PERIPHYTON ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
OCT 02...	1115	35	13.9	11.3	18.2	4.14	143
AUG 26...	1100	28	1.81	1.26	7.03	1.54	78.2

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO JUNE 1980

DATE	NOV 8,79	MAR 20,80	MAY 7,80	JUN 25,80
TIME	1130	1330	1100	1000
TOTAL CELLS/ML	1000	230	4500	1800
DIVERSITY: DIVISION	0.7	0.3	0.9	1.5
.CLASS	0.7	0.3	0.9	1.5
..ORDER	1.5	0.8	1.8	2.0
...FAMILY	2.1	2.2	2.7	2.7
....GENUS	2.2	2.2	3.1	3.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	13	1
...OOCYSTACEAE								
....ANKISTRODESMUS	52	5	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	52	3
...SCENEDESMACEAE								
....SCENEDESMUS	150	15	--	-	--	-	210	11
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	--	-	--	-	32	1	--	-
....CHLAMYDOMONAS	13	1	13	6	32	1	39	2
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	550#	54	26	11	1300#	28	13	1
....MELOSIRA	13	1	--	-	480	11	190	11
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	13	1	26	11	--	-	--	-
....COCCONEIS	--	-	--	-	160	4	13	1
...CYMBELLACEAE								
....AMPHORA	--	-	--	-	32	1	--	-
....CYMBELLA	13	1	--	-	220	5	--	-
...DIATOMACEAE								
....DIATOMA	--	-	--	-	160	4	--	-
...FRAGILARIACEAE								
....FRAGILARIA	--	-	--	-	--	-	210	11
....SYNEDRA	26	2	13	6	32	1	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	--	-	32	1	13	1
...NAVICULACEAE								
....NAVICULA	140	14	100#	44	580	13	13	1
...NITZSCHIACEAE								
....NITZSCHIA	52	5	51#	22	480	11	77	4
...SURIRELLACEAE								
....SURIRELLA	--	-	--	-	64	1	--	-
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	330#	84	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	45	6	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...PETALOMONADACEAE								
....CALYCOMONAS	6	1	--	-	--	-	--	-

06054500 MISSOURI RIVER AT TOSTON, MT--Continued

PHYTOPLANKTON ANALYSES, JULY 1980 TO SEPTEMBER 1980

DATE TIME	JUL 29,80 1330	AUG 26,80 1100	SEP 17,80 1200
TOTAL CELLS/ML	1600	27000	970
DIVERSITY: DIVISION	1.4	0.2	1.6
.CLASS	1.4	0.2	1.6
..ORDER	2.1	0.3	2.3
...FAMILY	2.7	0.3	3.5
....GENUS	3.1	0.8	3.5

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHLOROCOCCACEAE						
....CHLOROCOCCUM	13	1	--	-	--	-
...MICRACTINIACEAE						
....GOLENKINIA	26	2	--	-	--	-
....MICRACTINIUM	--	-	--	-	51	5
...OOCYSTACEAE						
....ANKISTRODESMUS	90	6	--	-	39	4
....CHODATELLA	13	1	--	-	--	-
....DICTYOSPHAERIUM	100	6	--	-	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	180	11	33	0	77	8
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	52	3	50	0	13	1
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	570#	35	170	1	90	9
....MELOSIRA	52	3	200	1	--	-
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	--	-	--	-	13	1
...CYMBELLACEAE						
....CYMBELLA	64	4	67	0	13	1
....EPITHEMIA	39	2	17	0	39	4
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	130	13
....SYNEDRA	52	3	--	-	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	--	-	13	1
...NAVICULACEAE						
....NAVICULA	13	1	17	0	120	12
...NITZSCHIACEAE						
....NITZSCHIA	120	7	130	1	64	7
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	33	0	13	1
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	13	1
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	150	1	130	13
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	3200	12	--	-
....ANABAENOPSIS	--	-	--	-	150#	16
....APHANIZOMENON	--	-	23000#	85	--	-
...OSCILLATORIACEAE						
....OSCILLATORIA	260#	16	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06058500 CANYON FERRY RESERVOIR NEAR HELENA, MT

LOCATION.--Lat 46°38'57", long 111°43'39", in SE1/4 SE1/4 sec.4, T.10 N., R.1 W., Lewis and Clark County, Hydrologic Unit 10030101, in block 17 of Canyon Ferry Dam, 15 mi (24 km) east of Helena, and at mile 2,252.8 (3,624.8 km).

DRAINAGE AREA.--15,904 mi^2 (41,191 km^2).

PERIOD OF RECORD.--April 1953 to current year (monthend contents only). Records of monthend contents in Lake Sewell, submerged by present reservoir Apr. 8, 1953, available January 1936 to March 1953. Scattered daily elevations and contents for April to July 1953, published in WSP 1320-B. Daily elevations and contents for May to June 1964, published in WSP 1840-B. Daily elevations and contents on file in Helena district office.

REVISED RECORDS.--WSP 1559: Drainage area.

GAGE.--Water-stage recorder in powerhouse control room. Datum of gage is referenced to National Geodetic Vertical Datum of 1929 (levels by U.S. Water and Power Resources Service).

REMARKS.--Reservoir is formed by concrete dam; construction began in 1949, completed in 1953. Storage began in March 1953. Usable capacity, 2,043,000 acre-ft (2.52 km^3) between elevation 3,650.00 ft (1,112.520 m), invert of outlet works, and 3,800.00 ft (1,158.240 m), controlled spillway elevation. Dead storage, 8,000 acre-ft (9.86 hm^3) below elevation 3,650.00 ft (1,112.520 m). Minimum operating level, 426,500 acre-ft (526 hm^3) at elevation 3,728.00 ft (1,136.294 m) for on-site power generation. Figures given herein represent usable contents. Water is used for power production, flood control, irrigation, recreation, and supplemental water supply for city of Helena.

COOPERATION.--Elevations and capacity table furnished by U.S. Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily contents, 2,043,000 acre-ft (2.52 km^3) July 15-29, 31, 1955, July 2, 5, 6, 8, 1956, July 16, 17, 1962, June 23, 1964, elevation, 3,800.0 ft (1,158.24 m); minimum since first filling, 1,017,000 acre-ft (1.25 km^3) Apr. 11, 1967, elevation, 3,764.70 ft (1,147.481 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily contents at 2400, 2,016,000 acre-ft (2.49 km^3) June 26, elevation, 3,799.23 ft (1,158.005 m); minimum, 1,455,000 acre-ft (1.79 km^3) Feb. 19, elevation, 3,781.84 ft (1,152.705 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	3,788.36	1,653,000	---
Oct. 31	3,788.12	1,646,000	- 7,000
Nov. 30	3,789.79	1,699,000	+ 53,000
Dec. 31	3,788.05	1,644,000	- 55,000
CAL YR 1979			+ 7,000
Jan. 31	3,783.24	1,496,000	-148,000
Feb. 29	3,782.39	1,471,000	- 25,000
Mar. 31	3,782.69	1,480,000	+ 9,000
Apr. 30	3,786.14	1,584,000	+104,000
May 31	3,798.00	1,973,000	+389,000
June 30	3,797.96	1,972,000	- 1,000
July 31	3,794.55	1,855,000	-117,000
Aug. 31	3,791.13	1,742,000	-113,000
Sept. 30	3,794.13	1,841,000	+ 99,000
WTR YR 1980			+188,000

06058502 MISSOURI RIVER BELOW CANYON FERRY DAM, NEAR HELENA, MT

LOCATION.--Lat 46°38'58", long 111°43'39", in NW¼SE¼SE¼ sec.4, T.10 N., R.1 W., Lewis and Clark County, Hydrologic Unit 10030101, at penstock of number 1 generator at Canyon Ferry Dam, 15 mi (24 km) east of Helena, and at mile 2,242.8 (3,608.7 km).

DRAINAGE AREA.--15,904 mi^2 (41,191 km^2).

PERIOD OF RECORD.--Water years 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to current year.

REMARKS.--Flow completely regulated. Many diversions for irrigation upstream from station. Prior to October 1971 samples and water temperatures were obtained about 200 ft (61 m) downstream from dam in tailrace pond. Once-daily water temperatures are available in District office.

COOPERATION.--Records of discharge furnished by Canyon Ferry Project Office, Bureau of Reclamation, Helena, Mt.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 442 micromhos Mar. 31, Apr. 13, 1978; minimum daily, 241 micromhos Dec. 16, 1968.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 421 micromhos Mar. 29; minimum daily, 288 micromhos Sept. 4.

WATER QUALITY, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
OCT												
02...	0800	3280	--	341	--	12.0	15.5	120	2	33	9.6	16
NOV												
08...	0810	4620	--	363	--	--	10.5	140	8	37	11	18
DEC												
05...	0830	4770	--	364	--	--	6.5	140	0	38	11	18
JAN												
11...	0830	5510	--	379	--	-11.0	2.5	150	9	40	12	19
FEB												
05...	0800	5770	0	400	8.3	-6.0	3.0	160	26	41	13	17
MAR												
20...	0930	5770	0	425	8.1	2.5	3.0	160	16	41	13	21
APR												
10...	0905	4070	3	418	8.2	7.0	4.0	160	16	41	13	21
MAY												
07...	0815	6060	2	412	8.3	12.0	6.5	160	21	43	13	24
JUN												
25...	0715	180	--	390	7.9	14.0	10.0	140	4	38	12	20
JUL												
29...	0845	5870	3	322	7.9	23.5	14.0	130	18	35	9.8	16
AUG												
26...	0745	2770	0	295	8.0	9.5	16.0	120	--	31	9.3	14
SEP												
17...	0830	3700	2	328	8.0	13.0	16.5	120	12	33	9.7	16

06058502 MISSOURI RIVER BELOW CANYON FERRY DAM, NEAR HELENA, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT 02...	.6	3.7	120	37	8.9	.8	17	199	.27	1760	.18	.00
NOV 08...	.7	3.6	130	38	9.5	.8	19	216	.29	2810	.24	.07
DEC 05...	.7	3.6	140	38	9.4	.8	19	223	.30	2870	.25	.03
JAN 11...	.7	3.6	140	44	13	.9	21	239	.33	3560	.27	.04
FEB 05...	.6	3.5	130	38	9.9	.8	20	223	.30	3470	.26	.05
MAR 20...	.7	4.0	140	44	11	1.0	22	242	.33	3770	.26	.03
APR 10...	.7	3.9	140	44	10	.7	22	241	.33	2650	.30	.07
MAY 07...	.8	3.9	140	43	12	1.1	23	248	.34	4060	.18	.02
JUN 25...	.7	3.8	140	40	11	1.0	21	232	.32	113	.19	.02
JUL 29...	.6	3.3	110	31	8.2	.7	19	190	.26	3010	.21	.04
AUG 26...	.6	3.3	--	45	7.8	--	18	--	--	--	--	--
SEP 17...	.6	3.6	110	30	8.4	.8	20	188	.26	1880	.16	.06

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980 ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	350	360	374	372	395	410	412	410	393	350	325	289
2	350	353	375	376	388	408	419	410	396	372	319	293
3	349	350	372	378	384	407	410	418	393	368	322	291
4	345	357	369	372	380	409	411	412	392	350	320	288
5	343	360	371	377	390	410	416	417	398	352	323	290
6	342	364	370	376	388	412	410	418	400	345	330	290
7	341	369	370	376	394	415	405	416	386	341	322	290
8	342	371	368	375	390	411	405	415	388	350	318	290
9	343	371	367	377	385	410	418	416	403	366	320	289
10	341	376	368	376	381	414	416	416	393	352	319	290
11	341	373	368	378	380	418	410	413	390	338	320	291
12	343	371	368	379	377	413	408	418	386	347	321	292
13	347	367	369	380	381	410	410	416	381	339	320	298
14	349	368	368	380	388	410	410	418	388	330	320	303
15	351	368	368	380	391	414	402	418	390	332	321	302
16	350	366	369	380	382	411	406	416	375	329	322	297
17	350	369	368	380	383	412	418	415	377	341	320	298
18	351	372	368	380	391	410	412	412	381	336	320	296
19	351	373	368	381	384	409	412	414	383	325	310	298
20	349	376	369	380	397	413	406	418	380	329	312	294
21	350	374	369	380	396	417	392	412	372	320	311	301
22	350	372	369	379	410	413	410	411	369	323	318	300
23	349	371	368	378	410	410	408	416	382	327	317	301
24	350	372	369	379	409	411	410	416	377	320	310	300
25	351	370	368	381	410	410	409	413	373	317	311	300
26	350	373	370	382	399	414	410	410	380	310	310	301
27	351	374	371	383	404	419	410	406	381	330	309	303
28	351	376	372	384	410	420	407	409	350	318	316	307
29	352	374	373	385	410	421	409	405	348	319	318	311
30	351	372	372	387	---	411	410	404	365	310	310	312
31	351	---	372	389	---	415	---	409	---	318	309	---
MEAN	348	369	370	379	393	412	410	413	382	336	318	297

WTR YR 1980 MEAN 369 MAX 421 MIN 288

06061500 PRICKLY PEAR CREEK NEAR CLANCY, MT

LOCATION.--Lat 46°31'05", long 111°56'45", in NE¼SW¼ sec.23, T.9 N., R.3 W., Jefferson County, Hydrologic Unit 10030101, on right bank 3.5 mi (5.6 km) downstream from Lump Gulch Creek, 4 mi (6 km) northeast of Clancy, 7 mi (11 km) southeast of Helena, and at mile 24.4 (39.3 km).

DRAINAGE AREA.--192 mi^2 (497 km^2).

PERIOD OF RECORD.--July 1908 to September 1916, July 1921 to September 1933, October 1945 to October 1953, October 1954 to September 1969, October 1978 to current year. October 1969 to September 1980 record collected by Montana Department of Natural Resources and Conservation. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1086: 1946(m). WSP 1309: 1925, 1927, 1931(M), 1933, 1948(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,067.1 ft (1,239.65 m) National Geodetic Vertical Datum of 1929. Prior to July 12, 1910, nonrecording gage at site 1.2 mi (1.9 km) upstream at different datum. July 12, 1910, to Sept. 30, 1916, and July 28, 1921, to Aug. 12, 1933, nonrecording gage at site 2.2 mi (3.5 km) upstream at different datum.

REMARKS.--Records good except those for winter periods, which are poor. Diversions for irrigation of about 700 acres (2.83 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

COOPERATION.--Records were collected by the Montana Department of Natural Resources and Conservation under general supervision of the Geological Survey.

AVERAGE DISCHARGE.--45 years (water years, 1909-16, 1922-33, 1946-53, 1955-69, 1979-80), 48.7 ft^3/s (1.379 m^3/s) 35,280 acre-ft/yr (43.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 900 ft^3/s (25.5 m^3/s) about June 9, 1927 (estimated on basis of hydrographic comparison); minimum, 0.5 ft^3/s (0.014 m^3/s) Jan. 26, 1958, gage height, 0.40 ft (0.122 m), backwater from ice.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 1,200 ft^3/s (34.0 m^3/s) June 19, 1975, gage height, 6.56 ft (2.000 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 140 ft^3/s (3.96 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 10	0900	284	8.04	3.36	1.024	June 20	1730	249	7.05	3.12	0.951
May 25	2130	*349	9.88	*3.80	1.158	June 23	2300	276	7.82	3.31	1.009
June 15	2300	269	7.62	3.26	0.994	July 5	0400	180	5.10	2.58	0.786

Minimum daily discharge, 14 ft^3/s (0.40 m^3/s) Jan. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	24	20	21	20	24	24	95	229	154	70	48
2	22	21	22	21	21	24	25	97	256	140	66	48
3	22	23	24	21	22	23	25	112	262	144	66	46
4	22	24	25	20	22	16	25	120	235	145	65	46
5	22	24	25	18	21	15	29	105	219	160	65	44
6	22	24	24	14	22	15	34	114	232	158	64	44
7	21	23	24	15	22	17	30	153	210	132	64	44
8	21	24	24	15	21	19	27	123	195	128	63	70
9	23	22	24	16	21	21	28	139	193	128	63	60
10	23	23	24	17	21	23	30	240	205	130	62	53
11	23	24	21	18	21	22	29	168	209	120	62	96
12	23	22	21	20	21	21	31	153	208	112	61	97
13	22	20	22	21	20	22	37	136	197	128	61	74
14	22	21	22	22	19	29	45	126	179	120	61	72
15	23	22	19	22	18	29	53	119	209	111	66	65
16	31	23	16	22	17	25	51	139	232	103	62	64
17	31	26	17	22	18	24	57	147	189	98	57	60
18	28	26	19	21	20	26	71	135	187	96	56	58
19	27	24	21	19	20	25	83	126	187	93	58	61
20	27	21	23	19	20	25	100	125	179	90	56	58
21	27	20	23	20	20	25	107	124	191	87	54	58
22	27	19	23	20	20	24	103	120	173	84	55	55
23	26	19	22	21	20	25	94	136	214	81	56	53
24	26	20	22	22	20	24	101	150	223	79	52	53
25	26	20	22	20	20	24	125	291	177	77	49	52
26	25	20	22	18	20	23	116	263	170	75	49	51
27	25	20	21	16	28	24	106	238	184	73	49	50
28	25	19	20	15	31	24	100	227	159	70	51	49
29	25	18	19	16	26	25	102	210	149	69	49	48
30	24	18	20	17	---	25	113	222	149	66	49	47
31	22	---	20	18	---	24	---	[illegible]	---	65	48	---
TOTAL	754	654	671	587	612	712	1901	4903	6001	3316	1809	1724
MEAN	24.3	21.8	21.6	18.9	21.1	23.0	63.4	158	200	107	58.4	57.5
MAX	31	26	25	22	31	29	125	291	262	160	70	97
MIN	21	18	16	14	17	15	24	95	149	65	48	44
AC-FT	1500	1300	1330	1160	1210	1410	3770	9730	11900	6580	3590	3420

CAL YR 1979 TOTAL 16606 MEAN 45.5 MAX 192 MIN 16 AC-FT 32940
WTR YR 1980 TOTAL 23644 MEAN 64.6 MAX 291 MIN 14 AC-FT 46900

06062500 TENMILE CREEK NEAR RIMINI, MT

LOCATION.--Lat 46°31'27", long 112°15'22", in NW¼SW¼NE¼ sec.20, T.9 N., R.5 W., Lewis and Clark County, Hydrologic Unit 10030101, Helena National Forest, on left bank at U.S. Forest Service Moose Creek picnic grounds, 500 ft (152 m) upstream from Moose Creek, 2.5 mi (4.0 km) north of Rimini, and at mile 20.4 (32.8 km).

DRAINAGE AREA.--32.7 mi^2 (84.7 km^2).

PERIOD OF RECORD.--October 1914 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1917, 1921, 1924-25. WSP 1509: 1915, 1916-17(M), 1920(M), 1927(M), 1928-30, (1947(M), 1948, 1950(M). WSP 1559: Drainage area. WSP 1709: 1959.

GAGE.--Water-stage recorder and concrete control since Oct. 20, 1937. Altitude of gage is 4,850 ft (1,478 m), from topographic map. Prior to Dec. 17, 1934, water-stage recorder at site 40 ft (12 m) downstream at different datum and different control.

REMARKS.--Records good except those below 2.0 ft^3/s (0.057 m^3/s), which are fair. Flow regulated by Chessman and Scott Reservoirs on tributaries above station, combined capacity, 2,340 acre-ft (2.89 hm^3). Small diversions above station for water supply for city of Helena. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--66 years, 17.6 ft^3/s (0.498 m^3/s), 12,750 acre-ft/yr (15.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 995 ft^3/s (28.2 m^3/s) June 19, 1975, gage height, 4.89 ft (1.490 m); maximum gage height, 4.98 ft (1.518 m), May 27, 1917, site and datum then in use; no flow at times

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 80 ft^3/s (2.27 m^3/s) and maximums (*):

		Discharge		Gage height				Discharge		Gage height	
Date	Time	(ft^3/s)	(m^3/s)	(ft)	(m)	Date	Time	(ft^3/s)	(m^3/s)	(ft)	(m)
May 10	0300	193	5.47	3.03	0.924	June 15	2330	115	3.26	2.72	0.829
May 16	1145	157	4.45	2.90	0.884	June 23	1915	101	2.86	2.66	0.811
May 31	0200	*208	5.89	*3.08	0.939	June 26	1900	94	2.65	2.62	0.799

Minimum discharge, 0.15 ft^3/s (0.004 m^3/s) Nov. 13, gage height, 1.13 ft (0.344 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.74	.42	.34	1.1	.91	1.1	1.1	59	178	45	6.1	2.7
2	.69	.35	.61	1.1	.99	1.1	1.1	65	176	39	5.0	3.2
3	.74	.80	.77	1.2	1.0	1.0	1.1	82	167	38	4.1	2.9
4	.72	.50	1.1	1.2	1.0	.84	1.2	87	142	35	4.9	2.7
5	.69	.42	.95	1.1	.93	.84	1.8	92	124	38	5.6	2.9
6	.67	.39	.95	1.0	.94	.90	2.0	96	132	43	2.8	3.4
7	.72	.38	.96	1.1	.97	.93	1.6	109	117	35	2.6	3.5
8	.74	.39	1.0	1.1	.96	.92	1.6	90	107	32	2.6	5.3
9	.84	.39	1.1	1.1	.96	.87	1.5	97	99	30	2.4	4.0
10	.86	.42	1.2	1.2	.96	.91	1.9	142	103	29	2.6	3.8
11	.86	.40	1.0	1.2	.95	.93	1.6	113	103	25	2.4	9.3
12	.86	.44	.92	1.3	.97	.92	1.7	107	103	22	2.4	7.2
13	.88	.41	.95	1.4	.99	.90	2.4	96	90	31	2.4	3.6
14	.74	.40	.91	1.4	.97	1.0	3.7	90	80	24	2.3	4.5
15	.54	.40	.80	1.2	.92	1.0	3.6	88	90	22	2.4	4.0
16	1.8	.49	.75	1.2	.92	.93	3.4	126	92	17	3.1	3.4
17	1.2	.71	.86	1.2	.93	.95	4.8	115	77	12	2.9	2.9
18	.59	.87	1.0	1.2	.98	.95	8.1	107	72	10	3.1	2.7
19	.60	.65	1.1	1.1	1.0	.93	13	107	66	7.9	3.2	5.8
20	.71	.50	1.1	1.1	1.0	.93	20	92	66	6.9	3.6	4.9
21	.65	.45	1.1	1.2	.96	.93	30	83	65	6.6	4.9	4.9
22	.62	.29	1.1	1.2	.93	1.1	32	79	57	6.3	4.9	3.5
23	.56	.25	1.1	1.2	.92	.94	36	96	72	5.3	4.1	3.1
24	.49	.35	1.2	1.2	.93	1.2	48	98	71	4.2	3.6	2.9
25	.47	.54	1.2	1.1	.93	1.2	65	153	56	4.2	3.2	5.3
26	.77	.62	1.1	1.1	1.0	.94	56	144	64	4.7	2.7	5.0
27	.49	.48	1.1	1.1	1.3	.93	54	146	68	4.7	2.8	2.2
28	.47	.44	1.0	.90	1.4	1.0	57	149	54	3.6	2.6	2.0
29	.42	.36	1.0	.80	1.2	.99	62	157	47	3.2	2.4	1.9
30	.40	.31	1.0	.83	---	1.1	61	176	46	4.1	2.6	2.0
31	.68	---	1.0	.88	---	1.1	---	196	---	4.2	2.8	---
TOTAL	22.21	13.82	30.27	35.01	28.82	30.28	578.2	3437	2784	592.9	103.1	115.5
MEAN	.72	.46	.98	1.13	.99	.98	19.3	111	92.8	19.1	3.33	3.85
MAX	1.8	.87	1.2	1.4	1.4	1.2	65	196	178	45	6.1	9.3
MIN	.40	.25	.34	.80	.91	.84	1.1	59	46	3.2	2.3	1.9
AC-FT	44	27	60	69	57	60	1150	6820	5520	1180	204	229

CAL YR 1979 TOTAL 4413.33 MEAN 12.1 MAX 198 MIN .25 AC-FT 8750
WTR YR 1980 TOTAL 7771.11 MEAN 21.2 MAX 196 MIN .25 AC-FT 15410

06066500 MISSOURI RIVER BELOW HOLTER DAM, NEAR WOLF CREEK, MT

LOCATION.--Lat 46°59'41", long 112°00'37", in NE¼SW¼SE¼ sec.5, T.14 N., R.3 W., Lewis and Clark County, Hydrologic Unit 10030102, on left bank 0.4 mi (0.6 km) downstream from Holter Dam, 2.8 mi (4.5 km) southeast of Wolf Creek, and at mile 2,210.7 (3,557.0 km), revised.

DRAINAGE AREA.--17,149 mi^2 (44,416 km^2).

PERIOD OF RECORD.--October 1945 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,464.11 ft (1,055.861 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by nine smaller irrigation reservoirs and powerplants, Clark Canyon Reservoir (station number 06015300), and Canyon Ferry Reservoir (station number 06058500). Diversions for irrigation of about 594,400 acres (2,410 km^2). Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--35 years, 5,573 ft^3/s (157.8 m^3/s) 4,038,000 acre-ft/yr (4.98 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,800 ft^3/s (986 m^3/s) June 8, 1948, gage height, 11.70 ft (3.566 m); minimum, probably less than 250 ft^3/s (7.08 m^3/s) during powerplant shutdown July 26, 1968; minimum daily, 747 ft^3/s (21.2 m^3/s) May 27, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,300 ft^3/s (518 m^3/s) June 26, gage height, 7.99 ft (2.435 m); minimum daily, 2,130 ft^3/s (60.3 m^3/s) May 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3810	3350	3480	5340	4510	3930	5010	5310	8170	13200	5940	3010
2	3770	3630	3440	5660	4360	4100	5080	5260	9800	10300	5910	2920
3	3640	3610	3290	5470	4520	4520	5170	5300	14400	8620	6050	2940
4	3240	3570	3330	5280	4570	4280	5130	5280	14700	8150	5920	2840
5	3510	3560	3390	5910	4610	4510	5100	5280	14600	8290	5880	3300
6	3830	3740	3310	6250	4620	4590	5060	5860	14500	8390	5400	3370
7	3590	3790	3690	6360	4580	4510	5060	5310	13800	8450	4610	3000
8	3720	3490	3650	6280	4160	4380	5100	4190	13200	8500	3650	2830
9	3470	3350	3510	6150	3710	4120	5180	2460	13300	8560	3270	2670
10	3330	3490	3470	6320	3680	4060	5230	2370	14500	8640	3700	3050
11	3310	3510	4030	6160	4060	4220	5240	2390	15200	8620	3700	3190
12	3510	3410	3920	5450	4250	4450	5220	2290	15200	8030	4140	3170
13	3480	3690	5190	5100	4480	4470	5090	2310	15000	6500	4130	3210
14	3380	3740	5310	5040	4510	4450	4990	2210	14700	6910	3540	3170
15	3530	3570	5540	4980	4420	4430	4990	2130	14300	7900	3390	3170
16	3330	3390	5980	4920	4350	4160	5200	2170	14800	7330	3590	3120
17	3670	3330	5110	4960	4260	4200	5210	2280	15900	6010	4120	3210
18	3800	3370	5380	4700	4280	4300	5000	2200	16600	5430	4260	3380
19	3550	3470	5530	4200	4280	4650	4740	2190	16400	5520	3970	3240
20	3450	3450	5420	5290	4370	4930	4940	3240	16000	5740	3910	3190
21	3320	3350	5510	5770	4270	4920	5290	4540	15900	5930	3350	3170
22	3700	3330	5370	5860	4420	4820	5290	4860	16000	6430	3000	2770
23	3580	3240	5120	5630	4470	4870	5150	5010	16000	6270	2950	3130
24	3610	3420	5260	5630	4360	5020	5610	5070	13200	6180	2860	3870
25	3620	3530	5520	5720	4340	5040	5220	5490	7140	5870	3120	3660
26	3510	3560	5310	5860	4270	5120	5220	6880	12600	5710	3150	2710
27	3320	3440	5370	5910	4240	5260	5200	6520	16400	5320	3260	2680
28	3210	3430	5470	5810	4340	5140	5190	6500	14100	5640	3320	2700
29	3580	3870	5420	5630	4090	4900	5200	6730	14200	6020	3300	2690
30	3640	3710	5350	4910	---	5010	5320	7520	14900	5940	3130	2670
31	3500	---	5160	4660	---	4960	---	8650	---	5930	2960	---
TOTAL	109510	105390	144830	171210	125380	142320	154430	137800	425510	224330	123480	92030
MEAN	3533	3513	4672	5523	4323	4591	5148	4445	14180	7236	3983	3068
MAX	3830	3870	5980	6360	4620	5260	5610	8650	16600	13200	6050	3870
MIN	3210	3240	3290	4200	3680	3930	4740	2130	7140	5320	2860	2670
AC-FT	217200	209000	287300	339600	248700	282300	306300	273300	844000	445000	244900	182500

CAL YR 1979 TOTAL 1745810 MEAN 4783 MAX 7410 MIN 3060 AC-FT 3463000
WTR YR 1980 TOTAL 1956220 MEAN 5345 MAX 16600 MIN 2130 AC-FT 3880000

06076690 SMITH RIVER NEAR FORT LOGAN, MT

LOCATION.--Lat 46°47'45", long 111°10'41", in NE¼SW¼SW¼ sec.13, T.12 N., R.4 E., Meagher County, Hydrologic Unit 10030103, on left bank, 15 ft (5 m) downstream from ranch bridge, 1.0 mi (1.6 km) upstream from Sheep Creek, 9.0 mi (14.5 km) north of Fort Logan, and at mile 83.7 (134.7 km).

DRAINAGE AREA.--846 mi^2 (2,191 km^2).

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,400 ft (1,340 m), from topographic map.

REMARKS.--Records good except those for November and December and those for period of no gage-height record, Jan. 5 to Mar. 10, which are poor. Flow slightly regulated by Smith River Reservoir (station number 06075000). Diversions for irrigation of about 19,300 acres (78 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,930 ft^3/s (54.7 m^3/s) Mar. 22, 1978, gage height, 5.46 ft (1.664 m); minimum, 33 ft^3/s (0.93 m^3/s) Nov. 11, 1978, gage height, 2.12 ft (0.646 m), result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 837 ft^3/s (23.7 m^3/s) May 26, gage height, 4.41 ft (1.344 m), no peak above base of 900 ft^3/s (25.5 m^3/s); minimum daily, 50 ft^3/s (1.42 m^3/s) Jan. 28, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101	115	89	84	70	100	126	162	521	247	95	84
2	101	110	95	80	80	95	126	155	502	230	94	84
3	95	118	104	76	77	90	140	147	488	213	89	83
4	100	123	119	71	75	85	145	140	443	215	92	81
5	101	122	102	66	73	81	168	129	409	212	93	81
6	98	124	89	63	72	84	178	124	396	216	88	80
7	97	121	72	59	70	90	170	120	426	200	87	78
8	97	117	88	56	69	98	155	122	392	185	85	90
9	96	123	122	59	68	102	150	131	352	188	89	94
10	99	120	126	63	67	104	152	322	333	192	87	89
11	103	119	82	70	66	120	157	315	372	185	85	89
12	106	110	87	80	64	129	157	234	392	177	88	110
13	105	100	94	90	63	133	160	195	364	180	86	110
14	107	100	99	99	61	145	181	170	329	189	87	107
15	110	105	83	93	58	215	203	160	388	191	80	103
16	119	110	69	88	56	173	201	143	506	182	80	102
17	124	120	81	80	66	147	195	133	465	165	78	102
18	117	120	109	75	80	140	203	129	417	155	76	99
19	121	110	106	71	99	145	209	124	387	153	83	103
20	122	81	101	73	96	143	209	120	365	146	80	105
21	123	71	93	76	92	155	221	124	346	137	78	105
22	121	80	88	78	86	157	215	129	326	124	80	103
23	122	95	90	79	83	157	198	147	328	114	92	102
24	121	100	90	80	80	152	181	221	401	103	92	98
25	123	82	86	72	77	143	173	434	343	102	86	96
26	120	81	80	60	83	143	173	759	302	100	84	96
27	116	80	75	52	140	133	162	590	286	96	84	97
28	115	76	70	50	160	140	152	456	294	95	85	97
29	116	74	66	51	125	138	150	388	264	94	84	97
30	117	81	79	52	---	143	155	396	242	90	82	92
31	112	---	89	60	---	122	---	506	---	90	83	---
TOTAL	3425	3088	2823	2206	2356	4002	5165	7425	11379	4966	2652	2857
MEAN	110	103	91.1	71.2	81.2	129	172	240	379	160	85.5	95.2
MAX	124	124	126	99	160	215	221	759	521	247	95	110
MIN	95	71	66	50	56	81	126	120	242	90	76	78
AC-FT	6790	6130	5600	4380	4670	7940	10240	14730	22570	9850	5260	5670

CAL YR 1979 TOTAL 65157 MEAN 179 MAX 1420 MIN 66 AC-FT 129200
WTR YR 1980 TOTAL 52344 MEAN 143 MAX 759 MIN 50 AC-FT 103800

06078200 MISSOURI RIVER NEAR ULM, MT

LOCATION.--Lat 47°26'09", long 111°23'07", in NE¼NW¼NW¼ sec.5, T.19 N., R.3 E., Cascade County, Hydrologic Unit 10030102, on left bank 5.6 mi (9.0 km) east of Ulm, 9.1 mi (14.6 km) downstream from Smith River, and at mile 2,140.4 (3,443.9 km).

DRAINAGE AREA.--20,941 mi^2 (54,237 km^2).

PERIOD OF RECORD.--August 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,313.27 ft (1,009.885 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for winter period, which are poor. Flow regulated by 10 smaller irrigation reservoirs and power plants, Clark Canyon Reservoir (station number 06015300), and Canyon Ferry Reservoir (station number 06058500). Diversions for irrigation of about 630,400 acres (2,550 km^2) above station. Most years several observations of water temperatures were made and are available in files of Helena district office.

AVERAGE DISCHARGE.--23 years, 6,763 ft^3/s (191.5 m^3/s), 4,900,000 acre-ft/yr (6.04 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 ft^3/s (779 m^3/s) June 22, 1964, gage height, 14.44 ft (4.401 m); maximum gage height, 14.64 ft (4.462 m) June 22, 1975; minimum daily discharge, 1,700 ft^3/s (48.1 m^3/s) June 17, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1953 reached a stage of about 17 ft (5.2 m); discharge, 35,000 ft^3/s (990 m^3/s). Flood in June 1948 reached a stage of about 16 ft (4.9 m); discharge, 32,000 ft^3/s (906 m^3/s), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 20,400 ft^3/s (578 m^3/s) June 19, gage height, 12.25 ft (3.734 m); minimum daily, 2,950 ft^3/s (83.5 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3840	3890	4010	5510	5160	4650	5480	7020	12800	17100	6560	3470
2	3940	3710	3970	5740	4920	4500	5490	6930	12200	16000	6530	3480
3	3980	3860	3820	6040	4860	4670	5520	6730	13100	12800	6510	3380
4	4010	3970	3780	5900	4970	5200	5580	6720	16600	10700	6640	3400
5	3560	3930	3690	5870	5000	5000	5520	6610	17500	9930	6620	3330
6	3660	3920	3810	6290	5030	5180	5560	6510	17600	9900	6540	3550
7	4000	4030	3690	6650	5030	5260	5570	6860	18600	9790	6180	3730
8	3840	4150	4020	6780	4990	5200	5590	6490	18800	9700	5540	3510
9	3970	3910	4150	6690	4560	5080	5600	5440	17600	9570	4770	3310
10	3830	3740	3880	6600	4180	4820	5620	4090	17000	9520	4140	3140
11	3650	3770	3830	6820	4130	4780	5750	4360	17700	9490	4420	3270
12	3570	3920	3890	6610	4500	5010	5770	4420	18500	9370	4450	3510
13	3710	3760	5220	5930	4810	5140	5770	4090	18900	8970	4730	3500
14	3730	3910	5580	5480	5000	5210	5690	3870	18700	7770	4880	3540
15	3670	4070	5740	5420	5040	5210	5780	3610	18700	7830	4430	3560
16	3770	3970	6000	5400	4870	5310	5910	3340	19500	8550	4140	3590
17	3690	3770	6350	5380	4750	5040	6080	3230	19700	8180	4210	3540
18	3790	3730	5460	5360	4730	4880	6190	3230	20000	7170	4590	3540
19	4120	3730	5840	5180	4800	4940	6270	3090	20300	6570	4890	3740
20	3940	3820	5950	4600	4810	5190	6290	2980	20100	6530	4620	3630
21	3840	3810	5950	5660	4900	5510	6640	3710	19600	6650	4530	3530
22	3730	3660	5900	6170	4790	5480	7070	4870	19100	6730	4170	3520
23	3930	3610	5830	6370	4990	5420	6980	5370	19100	7130	3710	3210
24	3920	3550	5620	6200	5010	5360	6750	5810	19200	6970	3620	3220
25	3920	3650	5680	6190	4920	5520	7090	6980	17200	6870	3470	3840
26	3930	3830	5890	6210	4800	5540	7080	13400	11400	6640	3590	4170
27	3840	3860	5740	6380	4750	5540	7060	15900	14300	6440	3660	3160
28	3720	3820	5770	6450	4720	5680	6900	13300	18800	6140	3750	2990
29	3510	3680	5860	6400	4830	5580	6760	11400	17500	6250	3760	3010
30	3780	4030	5800	6230	---	5290	6770	10800	16700	6570	3780	2950
31	3940	---	5700	5460	---	5480	---	11700	---	6550	3620	---
TOTAL	118330	115060	156420	185970	139850	160670	184130	202860	526800	268380	147050	103320
MEAN	3817	3835	5046	5999	4822	5183	6138	6544	17560	8657	4744	3444
MAX	4120	4150	6350	6820	5160	5680	7090	15900	20300	17100	6640	4170
MIN	3510	3550	3690	4600	4130	4500	5480	2980	11400	6140	3470	2950
AC-FT	234700	228200	310300	368900	277400	318700	365200	402400	1045000	532300	291700	204900

CAL YR 1979 TOTAL 2053190 MEAN 5625 MAX 10700 MIN 3510 AC-FT 4073000
WTR YR 1980 TOTAL 2308840 MEAN 6308 MAX 20300 MIN 2950 AC-FT 4580000

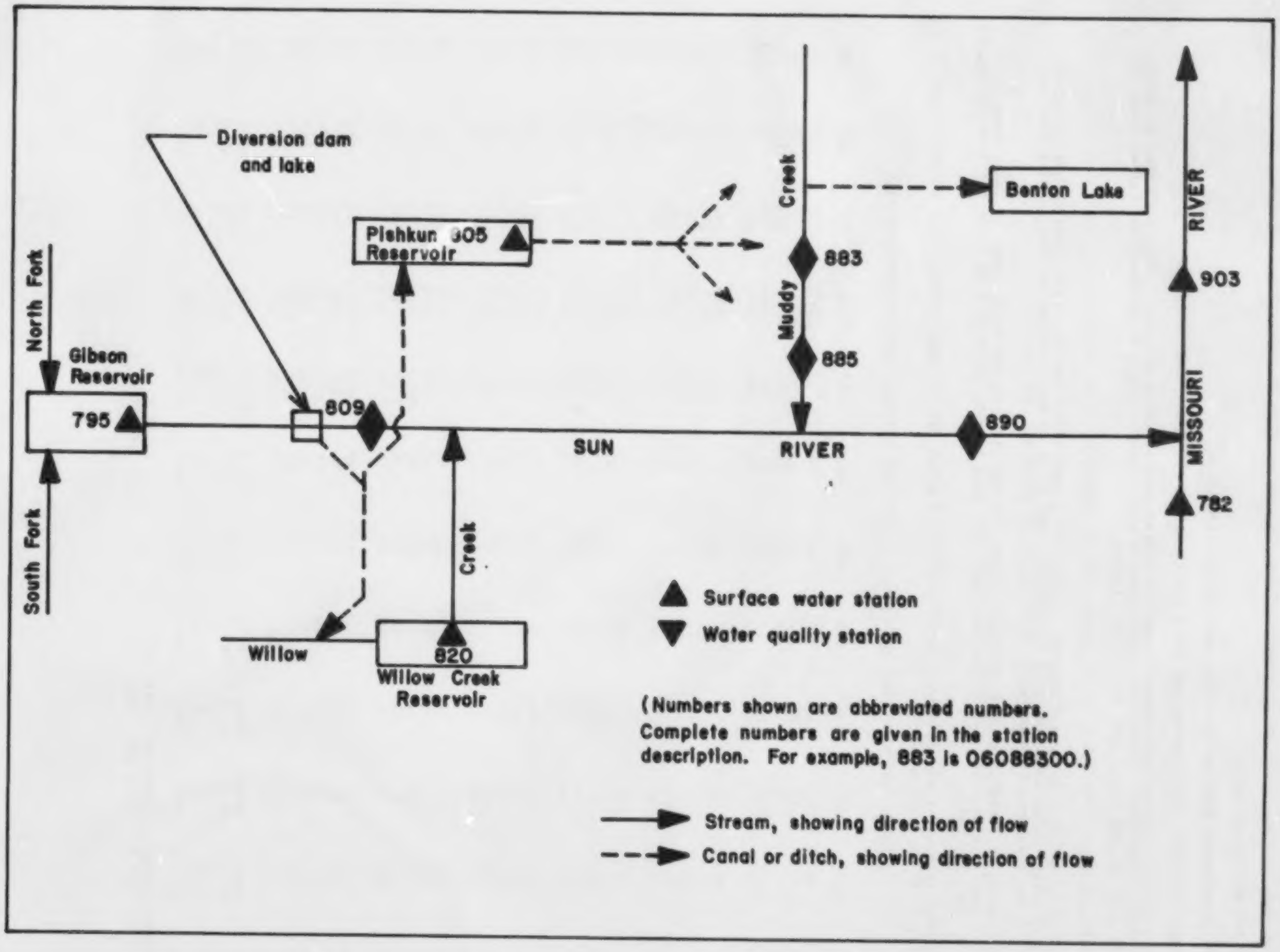

Diversion dam and lake
North Fork
Gibson Reservoir
795
South Fork
809
Pishkun 805 Reservoir
Willow
820
Willow Creek Reservoir
Creek
SUN
RIVER
Creek
Muddy
883
885
Benton Lake
890
MISSOURI
RIVER
903
782
▲ Surface water station
▼ Water quality station
(Numbers shown are abbreviated numbers. Complete numbers are given in the station description. For example, 883 is 06088300.)
Stream, showing direction of flow
Canal or ditch, showing direction of flow

Figure 7. Schematic diagram showing diversions and storage in Sun River basin

06080900 SUN RIVER BELOW DIVERSION DAM, NEAR AUGUSTA, MT

LOCATION.--Lat 47°37'10", long 112°41'28", near center of east line of sec.36, T.22 N., R.9 W., Lewis and Clark County, Hydrologic Unit 10030104, Lewis and Clark National Forest, on road bridge 1.0 mi (1.6 km) downstream from diversion dam, 16.5 mi (26.5 km) northwest of Augusta, and at mile 96.4 (155.1 km), revised.

DRAINAGE AREA.--609 mi^2 (1,577 km^2).

PERIOD OF RECORD.--September 1967 to Sept. 30, 1980 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 4,370 ft (1,332 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are fair. Flow regulated by Gibson Dam (station number 06079500). Diversions above station into Pishkun Canal and Willow Creek feeder canal for irrigation of about 91,000 acres (368 km^2) below station.

AVERAGE DISCHARGE.--13 years, 440 ft^3/s (12.46 m^3/s), 318,800 acre-ft/yr (393 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,000 ft^3/s (906 m^3/s) June 19, 1975, gage height, 19.00 ft (5.791 m), from rating curve extended above 8,700 ft^3/s (246 m^3/s) on basis of computation of peak flow over dam 1.0 mi (1.6 km) upstream; minimum daily, 20 ft^3/s (0.57 m^3/s) Dec. 16, 1974.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge known, 59,700 ft^3/s [illegible]90 m^3/s) June 9, 1964, from computation of peak flow over dam 1.0 mi (1.6 km) upstream; gage height, about 24.8 ft (7.56 m), from floodmark, from levels of Aug. 12, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,430 ft^3/s (154 m^3/s) May 26, gage height, 9.36 ft (2.853 m); minimum daily, 30 ft^3/s (0.85 m^3/s) Apr. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	75	62	60	56	64	62	58	2870	1070	91	121
2	70	73	64	60	62	62	61	66	2820	571	95	121
3	72	75	63	60	62	62	61	122	2760	384	103	121
4	72	75	67	58	62	60	62	609	2620	324	91	121
5	72	75	61	56	62	60	63	1980	2200	287	92	119
6	72	75	61	52	62	60	64	2480	2380	197	96	121
7	72	75	63	52	61	62	63	2280	2410	147	96	121
8	72	74	62	52	62	62	61	1710	1930	134	90	121
9	73	76	63	52	60	61	65	1150	1570	130	52	130
10	72	74	63	52	61	62	43	1010	1720	128	48	130
11	71	76	67	52	61	63	30	612	2300	118	54	132
12	73	74	65	52	62	61	36	445	3040	114	53	124
13	73	68	65	58	58	62	39	283	3700	124	46	117
14	73	60	61	62	58	63	35	194	3790	113	43	119
15	73	61	60	60	58	62	39	218	3400	120	52	121
16	74	62	62	60	58	62	39	256	3540	113	54	117
17	73	64	64	60	60	61	42	248	3540	107	53	112
18	73	61	66	58	61	62	44	256	3110	105	49	121
19	76	60	64	56	62	62	45	259	2420	116	52	173
20	73	58	64	56	61	62	43	351	2050	117	54	132
21	75	58	63	58	61	62	39	1070	1970	110	101	83
22	74	57	62	60	61	62	45	1970	1480	118	154	86
23	74	56	62	62	61	62	46	3540	1430	111	161	86
24	74	56	62	60	61	62	38	4120	1140	102	160	82
25	75	56	63	58	61	61	52	3930	983	95	160	85
26	74	56	61	56	64	60	58	5190	961	94	160	85
27	73	55	62	52	71	61	56	4480	1130	102	161	85
28	74	54	58	50	69	61	55	2900	1410	103	160	86
29	74	53	60	52	65	61	55	2340	1540	93	160	85
30	74	58	60	52	---	61	81	2380	1470	91	141	85
31	74	---	60	52	---	61	---	2760	---	90	121	---
TOTAL	2266	1950	1940	1740	1783	1909	1522	49267	67684	5628	3003	3342
MEAN	73.1	65.0	62.6	56.1	61.5	61.6	50.7	1589	2256	182	96.9	111
MAX	76	76	67	62	71	64	81	5190	3790	1070	161	173
MIN	70	53	58	50	56	60	30	58	961	90	43	82
AC-FT	4490	3870	3850	3450	3540	3790	3020	97720	134300	11160	5960	6630

CAL YR 1979 TOTAL 127391 MEAN 349 MAX 5160 MIN 47 AC-FT 252700
WTR YR 1980 TOTAL 142034 MEAN 388 MAX 5190 MIN 30 AC-FT 281700

06088300 MUDDY CREEK NEAR VAUGHN, MT

LOCATION.--Lat 47°37'30", long 111°38'05", in NW1/4 NE1/4 sec.32, T.22 N., R.1 E., Cascade County, Hydrologic Unit 10030104, on left bank 200 ft (61 m) downstream from bridge on county road and 6.2 mi (10.0 km) northwest of Vaughn, and at mile 14.6 (23.5 km).

DRAINAGE AREA.--282 mi^2 (730 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,441.79 ft (1,049.058 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Water-discharge records good except those for winter period, which are poor. Natural flow increased by wastage from Greenfields Irrigation Project. Diversions for irrigation of about 400 acres (1.62 km^2) above station. Pumped diversions from Muddy Creek above station in SW1/4 sec.2, T.22 N., R.1 W., to supplement water supply for Benton Lake Wildlife Refuge are listed below.

AVERAGE DISCHARGE.--12 years, 121 ft^3/s (3.427 m^3/s), 87,660 acre-ft/yr (108 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,110 ft^3/s (81.1 m^3/s) May 7, 1975, gage height, 13.46 ft (4.103 m); minimum daily, 8.0 ft^3/s (0.23 m^3/s) Dec. 8, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,470 ft^3/s (41.6 m^3/s) May 26, gage height, 8.44 ft (2.573 m); minimum daily discharge, 15 ft^3/s (0.42 m^3/s) Jan. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	56	45	40	19	35	32	29	198	125	250	141
2	55	54	62	37	25	36	32	124	194	127	257	147
3	55	55	69	33	30	35	35	113	208	152	262	141
4	53	56	63	26	27	31	38	81	202	148	258	140
5	53	56	52	22	25	29	42	76	201	168	217	136
6	59	56	51	20	28	30	45	57	205	136	189	130
7	64	55	42	18	28	31	39	100	212	143	184	121
8	68	55	48	17	28	35	35	110	186	101	203	119
9	68	55	46	17	28	38	36	130	171	91	225	141
10	64	55	41	16	27	41	37	194	177	100	277	139
11	61	53	35	16	26	42	39	170	173	75	291	138
12	61	51	32	16	26	43	39	161	177	71	297	155
13	61	50	31	17	26	45	36	177	206	85	262	157
14	62	50	30	18	24	46	36	131	188	89	237	165
15	69	50	29	19	23	45	32	77	177	90	208	171
16	68	49	26	19	24	45	30	74	171	88	183	163
17	63	50	40	18	26	43	29	141	160	100	182	150
18	59	49	50	17	30	41	28	126	153	110	211	147
19	66	49	59	17	31	38	28	138	154	121	240	171
20	62	39	55	17	32	35	27	145	146	142	268	175
21	59	28	50	17	31	34	27	117	150	157	249	137
22	60	50	45	17	30	34	29	103	145	146	221	106
23	59	46	41	18	30	37	30	160	166	135	201	96
24	58	43	43	19	29	33	29	267	172	137	175	93
25	58	40	44	18	30	30	30	588	138	146	154	93
26	57	40	43	16	34	30	28	810	138	183	154	89
27	56	35	42	15	37	31	27	268	202	207	146	88
28	56	33	40	16	36	31	26	192	162	221	134	88
29	56	32	38	16	36	32	26	180	139	216	130	85
30	56	34	36	17	---	32	26	185	126	221	125	83
31	56	---	37	18	---	30	---	201	---	226	112	---
TOTAL	1856	1424	1365	607	826	1118	973	5425	5197	4257	6502	3905
MEAN	59.9	47.5	44.0	19.6	28.5	36.1	32.4	175	173	137	210	130
MAX	69	56	69	40	37	46	45	810	212	226	297	175
MIN	53	28	26	15	19	29	26	29	126	71	112	83
AC-FT	3680	2820	2710	1200	1640	2220	1930	10760	10310	8440	12900	7750
(†)	0	0	0	0	0	0	0	0	0	0	2000	0

CAL YR 1979 TOTAL 45964 MEAN 126 MAX 1100 MIN 25 AC-FT 91170
WTR YR 1980 TOTAL 33455 MEAN 91.4 MAX 810 MIN 15 AC-FT 66360

†Diversions, in acre-feet, to Benton Lake, furnished by Fish and Wildlife Service.

06088300 MUDDY CREEK NEAR VAUGHN, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1968 to current year.
SUSPENDED-SEDIMENT DISCHARGE: July 1968 to current year.

REMARKS.--Flow affected by ice during most of winter months. Once-daily water temperatures are available in the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 6,400 micromhos Apr. 29, 1976; minimum daily, 365 micromhos Feb. 20, 1969.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 13,000 mg/L Mar. 18, 1978; minimum daily mean observed, 11 mg/L Oct. 19, 1968, Oct. 19, 1972, Oct. 30, 1973.
SEDIMENT LOADS: Maximum daily, 48,000 tons (43,500 megagrams) May 7, 1975; minimum daily, 0.84 ton (0.76 megagram) Jan. 8, 1973.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,700 micromhos Apr. 7; minimum daily, 490 micromhos May 13.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 9,110 mg/L May 26; minimum daily mean, 14 mg/L Oct. 13, 18.
SEDIMENT LOADS: Maximum daily, 26,100 tons (23,700 megagrams) May 26; minimum daily, 1.4 tons (1.3 megagrams) Jan. 11.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
OCT 31...	1320	56	3	1030	--	--	1.0	430	120	60	67	64
DEC 06...	1305	48	1	1120	--	12.0	--	450	140	64	71	76
JAN 08...	1410	18	3	1460	--	-17.0	1.0	590	240	96	85	100
FEB 06...	1150	27	3	1080	8.3	5.0	.5	520	190	75	80	70
MAR 12...	0930	43	2	1210	8.1	3.0	.0	470	250	64	76	98
APR 18...	0815	29	0	1780	8.5	14.0	8.0	690	380	77	120	190
MAY 26...	1500	538	1	1300	7.6	22.0	9.0	450	270	73	66	140
JUL 17...	0900	102	0	825	8.4	19.0	15.5	350	83	54	53	51
SEP 04...	1000	142	0	708	8.1	22.0	11.5	320	63	50	48	36

DATE	SODIUM AD-SORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)
OCT 31...	1.4	2.6	310	240	8.2	1.0	6.0	652	.89	98.6	3.8	.00
DEC 06...	1.6	2.5	310	290	10	.9	8.2	731	.99	94.7	5.0	.01
JAN 08...	1.8	3.3	350	420	13	1.1	10	957	1.30	46.5	4.1	.00
FEB 06...	1.3	2.8	330	270	8.5	1.0	9.3	731	.99	53.3	3.5	.02
MAR 12...	2.0	4.9	220	400	12	.8	7.3	817	1.11	94.9	4.9	.06
APR 18...	3.2	4.0	310	710	19	.7	1.8	1330	1.81	104	4.7	.14
MAY 26...	2.9	7.0	180	530	15	.4	7.7	961	1.31	1400	3.1	.04
JUL 17...	1.2	3.0	270	170	5.8	1.0	4.7	508	.69	140	.79	.01
SEP 04...	.9	1.9	260	110	5.0	.7	4.7	417	.57	160	1.1	.01

06088300 MUDDY CREEK NEAR VAUGHN, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1040	1030	1080	1080	1230	1280	1350	1300	---	827	549	669
2	1030	1040	1010	1060	1240	1400	1500	791	835	729	504	688
3	1040	1040	1040	1060	1110	---	1600	848	757	652	506	715
4	1020	1040	1000	1180	1140	1550	1720	732	731	620	508	690
5	---	1050	1120	1180	1090	1450	1940	---	690	600	562	649
6	1000	1060	1140	1230	---	1550	---	819	690	617	590	670
7	990	1060	1120	1370	---	1250	2700	682	670	---	599	721
8	985	1060	1010	---	1130	1200	2530	629	682	686	629	705
9	979	1050	1100	1270	1080	---	2340	576	691	747	---	635
10	997	1030	1160	---	1130	1180	2120	---	---	711	538	649
11	1000	1050	---	1140	1140	1200	2230	---	721	767	529	700
12	984	1060	1330	1110	1120	1490	2680	539	730	810	550	607
13	971	1070	1210	1160	1080	1620	2630	490	799	832	---	650
14	1000	1070	1120	1090	---	2120	2570	734	1880	810	550	643
15	1040	1060	1110	1200	1140	2500	2500	802	---	805	---	661
16	1040	1070	1220	1080	---	1970	---	830	850	790	---	665
17	---	1060	1280	---	1100	1950	2030	569	773	700	590	660
18	1030	1040	---	1100	---	1770	1860	601	720	740	---	681
19	1020	1050	1090	1160	1060	1760	1760	---	---	710	---	645
20	1090	1080	1160	1180	1050	1780	1640	591	820	720	539	581
21	1090	1100	1180	1130	1060	1730	1630	620	757	688	519	672
22	---	1110	1180	---	1120	1680	---	680	729	---	570	763
23	1080	1060	1150	1060	1060	1610	---	632	681	722	543	790
24	1020	1040	1180	1040	1100	---	1440	649	640	732	602	850
25	1030	1060	1140	1050	1110	---	1400	1390	686	780	551	839
26	1020	1090	1140	1150	1110	---	1400	1400	730	689	---	820
27	1020	1110	1160	1280	1060	1540	1380	1350	969	680	641	865
28	1020	1120	1180	1340	1300	1510	---	1160	1170	637	640	859
29	1020	1070	1160	1260	1310	1400	1340	1080	1160	638	661	825
30	1030	---	1180	1200	---	---	1330	---	976	625	630	858
31	1030	---	1120	---	---	1500	---	894	---	620	692	---
MEAN	1020	1060	1140	1160	1130	1600	1900	823	828	713	575	714

WTR YR 1980 MEAN 1050 MAX 2700 MIN 490

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	17	2.5	31	4.7	74	9.0	60	6.5	65	3.3	109	10
2	17	2.5	30	4.4	99	17	67	6.7	42	2.8	93	9.0
3	18	2.7	29	4.3	72	13	40	3.6	66	5.3	61	5.8
4	22	3.1	29	4.4	132	22	50	3.5	36	2.6	46	3.9
5	26	3.7	27	4.1	142	20	56	3.3	51	3.4	91	7.1
6	27	4.3	26	3.9	122	17	48	2.6	26	2.0	98	7.9
7	21	3.6	38	5.6	130	15	42	2.0	29	2.2	88	7.4
8	29	5.3	33	4.9	127	16	42	1.9	31	2.3	67	6.3
9	23	4.2	22	3.3	104	13	56	2.6	40	3.0	49	5.0
10	26	4.5	19	2.8	126	14	40	1.7	49	3.6	59	6.5
11	26	4.3	25	3.6	85	8.0	33	1.4	55	3.9	107	12
12	18	3.0	38	5.2	99	8.6	40	1.7	57	4.0	209	24
13	14	2.3	38	5.1	107	9.0	34	1.6	58	4.1	185	22
14	21	3.5	34	4.6	122	9.9	49	2.4	45	2.9	227	28
15	36	6.7	34	4.6	65	5.1	39	2.0	32	2.0	285	35
16	34	6.2	26	3.4	60	4.2	33	1.7	25	1.6	86	10
17	28	4.8	22	3.0	54	5.8	34	1.7	39	2.7	82	9.5
18	14	2.2	25	3.3	139	19	36	1.7	54	4.4	158	17
19	30	5.3	30	4.0	113	18	34	1.6	62	5.2	253	26
20	26	4.4	55	5.8	77	11	35	1.6	38	3.3	149	14
21	20	3.2	136	10	59	8.0	50	2.3	38	3.2	146	13
22	26	4.2	105	14	59	7.2	45	2.1	53	4.3	150	14
23	25	4.0	58	7.2	55	6.1	44	2.1	74	6.0	173	17
24	21	3.3	53	6.2	56	6.5	62	3.2	75	5.9	167	15
25	28	4.4	52	5.6	63	7.5	31	1.5	65	5.3	165	13
26	22	3.4	58	6.3	50	5.8	43	1.9	84	7.7	154	12
27	18	2.7	71	6.7	68	7.7	49	2.0	148	15	107	9.0
28	16	2.4	57	5.1	64	6.9	45	1.9	135	13	102	8.5
29	26	3.9	38	3.3	57	5.8	52	2.2	94	9.1	101	8.7
30	36	5.4	52	4.8	61	5.9	57	2.6	---	---	85	7.3
31	30	4.5	---	---	68	6.8	66	3.2	---	---	83	6.7
TOTAL	---	120.5	---	154.2	---	328.8	---	76.8	---	134.1	---	390.6

06088300 MUDDY CREEK NEAR VAUGHN, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	82	7.1	70	5.5	404	216	126	43	417	281	87	33
2	79	6.8	2390	869	406	213	150	51	396	275	95	38
3	85	8.0	1650	659	476	267	218	89	350	248	88	34
4	72	7.4	689	151	380	207	193	77	320	223	64	24
5	73	8.3	590	121	321	174	219	99	258	151	59	22
6	78	9.5	382	59	365	202	178	65	201	103	56	20
7	67	7.1	740	215	351	201	175	68	192	95	55	18
8	63	6.0	493	146	252	127	144	39	201	110	55	18
9	58	5.6	735	258	233	108	129	32	212	129	77	29
10	66	6.6	1300	681	265	127	124	33	347	260	71	27
11	71	7.5	853	392	338	158	73	15	399	313	68	25
12	67	7.1	689	300	347	166	64	12	316	253	84	35
13	61	5.9	763	365	526	293	69	16	251	178	80	34
14	86	8.4	436	154	307	156	73	18	213	136	77	34
15	99	8.6	242	50	312	149	80	19	187	105	101	47
16	86	7.0	187	37	296	137	60	14	162	80	91	40
17	75	5.9	432	171	194	84	107	29	144	71	71	29
18	81	6.1	288	98	175	72	191	57	157	89	63	25
19	82	6.2	383	143	187	78	191	62	174	113	108	50
20	74	5.4	392	153	164	65	284	109	269	195	99	47
21	71	5.2	313	99	153	62	316	134	202	136	78	29
22	78	6.1	327	91	147	58	237	93	147	88	62	18
23	82	6.6	478	246	257	115	175	64	125	68	38	9.8
24	85	6.7	1750	1260	199	92	179	66	99	47	46	12
25	88	7.1	6190	15500	159	59	145	57	80	33	41	10
26	90	6.8	9110	26100	160	60	296	146	75	31	34	8.2
27	78	5.7	1470	1060	589	321	394	220	66	26	33	7.8
28	66	4.6	706	366	235	103	409	244	70	25	27	6.4
29	62	4.4	519	252	144	54	373	218	79	28	19	4.4
30	60	4.2	392	196	125	43	432	258	70	24	25	5.6
31	---	---	434	236	---	---	445	272	74	22	---	---
TOTAL	---	197.9	---	50433.5	---	4167	---	2719	---	3936	---	740.2

TOTAL LOAD FOR YEAR: 63398.6 TONS.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)
MAY										
08...	1000	9.0	120	478	155	46	68	91	97	100
26...	1430	9.0	558	5240	7890	42	58	87	97	100

06088500 MUDDY CREEK AT VAUGHN, MT

LOCATION.--Lat 47°33'42", long 111°32'33", near center of S1/2 NE1/4 sec.24, T.21 N., R.1 E., Cascade County, Hydrologic Unit 10030104, on right bank, 30 ft (9.1 m) upstream from old highway bridge at Vaughn, and at mile 1.3 (2.1 km), revised.
DRAINAGE AREA.--314 mi^2 (813 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1925 to February 1926, April 1934 to September 1968, July 1971 to current year.
REVISED RECORDS.--WSP 856: 1937. WSP 1509: 1934-35, 1941(M). WSP 1559: 1956. WSP 1629: Drainage area.
GAGE.--Water-stage recorder. Datum of gage is 3,337.64 ft (1,017.313 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). May 21, 1925, to Feb. 8, 1926, nonrecording gage at site 500 ft (152 m) downstream at different datum. Apr. 19, 1925, to Sept. 30, 1955, at present site at datum 1.00 ft (0.305 m) higher. May 18, 1955, to Apr. 25, 1960, and Sept. 24, 1962, to Sept. 30, 1968, auxiliary crest-stage gage. Oct. 1, 1955, to Sept. 30, 1968, nonrecording gage at bridge 30 ft (9.1 m) downstream at present datum.
REMARKS.--Water-discharge records good except those for Oct. 1-31, which are fair, and those for the winter period, which are poor. Natural flow increased by wastage from Sun River Canal and by return flow from irrigation. Diversions for irrigation of about about 700 acres (2.83 km^2) above station. Pumped diversions from Muddy Creek above station in SW1/4 sec.2, T.22 N., R.1 W., to supplement water supply for Benton Lake Wildlife Refuge are listed below.
AVERAGE DISCHARGE.--43 years (1934-68, 1971-80), 127 ft^3/s (3.597 m^3/s), 92,010 acre-ft/yr (113 hm^3/yr).
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,600 ft^3/s (215 m^3/s) June 4, 1953, gage height, 17.7 ft, (5.40 m), present datum, from floodmarks, from rating curve extended above 3,000 ft^3/s (85.0 m^3/s) on basis of slope-area measurement of peak flow; minimum, 2.0 ft^3/s (0.057 m^3/s) Mar. 16, 17, 1972, gage height, 1.20 ft (0.366 m), result of ice jams upstream.
EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1908 reached a stage of about 24 ft (7.3 m), present datum (discharge not determined); flood in June 1932 reached a stage of about 19 ft (5.8 m), present datum (discharge not determined); from information by local residents.
EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,680 ft^3/s (47.6 m^3/s) May 26, gage height, 8.43 ft (2.569 m); daily discharge, 16 ft^3/s (0.45 m^3/s) Jan. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	56	50	42	30	45	31	25	283	155	332	220
2	81	54	70	42	40	48	32	125	270	150	341	230
3	83	55	75	35	50	45	34	211	286	179	359	230
4	80	56	70	30	45	40	38	154	277	190	388	225
5	76	56	55	25	45	38	41	143	268	217	354	225
6	78	56	60	22	45	40	45	133	272	175	310	218
7	80	56	50	20	45	42	39	141	283	191	306	210
8	82	56	60	19	45	45	34	156	252	131	297	195
9	80	55	56	18	45	50	34	168	221	221	333	225
10	76	57	50	17	45	55	36	269	223	195	392	219
11	72	55	45	17	40	60	38	267	252	115	418	206
12	68	55	40	17	40	60	38	252	231	93	419	231
13	68	54	35	18	40	60	36	266	287	103	384	241
14	68	58	33	19	35	60	35	211	259	113	363	266
15	70	55	31	20	33	60	33	127	246	113	308	294
16	74	53	30	20	35	60	29	116	239	102	263	297
17	70	55	45	20	40	55	29	185	216	104	268	280
18	66	53	55	19	42	50	28	186	199	121	288	268
19	68	51	65	18	42	45	28	202	196	132	343	308
20	66	43	60	18	45	40	27	214	180	164	380	312
21	60	30	55	18	42	37	26	180	182	214	369	274
22	62	55	50	18	40	35	27	166	175	199	335	194
23	62	50	45	19	38	35	29	220	196	188	303	176
24	60	47	47	20	37	34	28	388	209	183	261	169
25	60	45	50	20	40	33	29	667	179	190	228	170
26	60	42	47	18	45	32	27	1080	167	231	218	164
27	58	40	45	16	50	31	26	394	258	280	225	162
28	58	37	42	17	48	30	26	267	225	315	207	159
29	58	35	40	17	47	30	25	248	191	292	203	151
30	58	37	39	18	---	31	25	254	165	302	200	127
31	58	---	38	20	---	29	---	278	---	305	190	---
TOTAL	2140	1507	1533	657	1214	1355	953	7693	6887	5663	9585	6646
MEAN	69.0	50.2	49.5	21.2	41.9	43.7	31.8	248	230	183	309	222
MAX	83	58	75	42	50	60	45	1080	287	315	419	312
MIN	58	30	30	16	30	29	25	25	165	93	190	127
AC-FT	4240	2990	3040	1300	2410	2690	1890	15260	13660	11230	19010	13180
(†)	0	0	0	0	0	0	0	0	0	0	2000	0

CAL YR 1979 TOTAL 59194 MEAN 162 MAX 1200 MIN 29 AC-FT 117400
WTR YR 1980 TOTAL 45833 MEAN 125 MAX 1080 MIN 16 AC-FT 90910

† Diversions, in acre-feet, to Benton Lake, furnished by Fish and Wildlife Service.

06088500 MUDDY CREEK AT VAUGHN, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968, 1971 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to September 1968, July 1972 to current year.
SUSPENDED SEDIMENT DISCHARGE: July 1971 to current year.

REMARKS.--Flow affected by ice during most of winter months. Once-daily water temperatures are available in the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 5,400 micromhos Apr. 30, 1976; minimum daily, 470 micromhos June 8, 1974.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 15,900 mg/L May 7, 1975; minimum daily mean, 10 mg/L Feb. 10, 1973.
SEDIMENT LOADS: Maximum daily, 109,000 tons (98,900 megagrams) May 7, 1975; minimum daily, 0.68 ton (0.62 megagram) Feb. 10, 1973.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,820 micromhos Apr. 15; minimum daily, 518 micromhos May 13.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 13,000 mg/L May 26; minimum daily mean, 16 mg/L Feb. 17.
SEDIMENT LOADS: Maximum daily, 41,900 tons (38,000 megagrams) May 26; minimum daily, 1.7 tons (1.5 megagrams) Feb. 17.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
OCT 31...	1020	59	3	1080	--	-2.0	.0	440	130	63	68	71
DEC 06...	1620	61	2	1140	--	4.5	.0	430	130	67	64	73
JAN 08...	1605	19	3	1430	--	-20.0	.5	620	--	100	89	110
FEB 06...	1600	45	60	1160	8.4	5.0	.5	520	190	79	78	85
MAR 12...	1400	62	1	1260	8.2	5.0	.0	500	270	76	76	110
APR 17...	1600	29	0	2160	8.9	25.5	16.0	860	570	98	150	220
MAY 26...	1830	678	1	1320	7.7	19.0	12.0	450	320	80	60	140
JUL 17...	1220	102	2	808	8.4	19.5	18.5	330	100	53	48	53
AUG 29...	1130	193	1	702	8.2	14.0	13.0	310	67	52	43	37

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT 31...	1.5	2.6	310	270	8.5	1.0	4.8	690	.94	110	3.4	.04
DEC 06...	1.5	2.6	300	320	9.1	.8	7.0	739	1.01	122	3.4	.00
JAN 08...	1.9	3.2	--	480	15	1.1	9.8	826	1.12	42.4	4.1	.01
FEB 06...	1.6	3.2	330	340	12	1.0	10	824	1.12	100	3.9	.02
MAR 12...	2.1	4.5	230	420	16	.9	6.9	883	1.20	148	7.8	.03
APR 17...	3.3	4.7	290	910	22	.6	2.3	1600	2.18	125	4.7	.01
MAY 26...	2.9	6.5	130	550	16	.4	7.5	950	1.29	1740	2.5	.01
JUL 17...	1.3	2.9	230	180	5.4	1.0	4.3	488	.66	134	.53	.01
AUG 29...	.9	1.6	240	130	3.9	.6	3.4	418	.57	218	.57	.02

06088500 MUDDY CREEK AT VAUGHN, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	988	1040	1170	1180	1310	1340	1410	1400	---	729	625	---
2	1020	1060	1110	1110	1300	---	1480	1170	752	---	600	679
3	1020	1060	1050	1110	1320	1440	1580	820	638	686	658	691
4	1020	1050	1020	1180	1230	1500	1600	825	662	621	600	670
5	---	1060	1120	1250	1250	1630	1720	---	625	549	669	666
6	1020	1060	1180	---	---	1630	---	711	668	---	685	660
7	989	1070	1190	1440	---	1520	2500	772	---	---	648	630
8	968	1080	1190	1470	1200	1310	2600	589	---	657	698	673
9	950	1080	1120	1500	1180	---	2600	620	641	700	---	661
10	941	1070	1170	---	1320	1270	2560	538	632	726	620	671
11	928	1070	1380	1260	1330	1340	2310	---	791	751	550	652
12	884	1080	1490	1220	1300	1360	2100	530	718	782	603	690
13	881	1070	1530	1230	1300	1370	2240	518	820	---	---	661
14	892	1060	1290	1240	---	---	2530	629	1690	786	620	---
15	963	1080	---	1190	1320	2500	2820	717	---	775	---	652
16	931	1100	1240	1280	---	2260	---	779	848	820	---	---
17	924	1080	1290	---	1360	1920	2330	755	722	809	665	631
18	1020	1080	---	1180	1270	1900	2140	649	671	753	---	661
19	1020	1070	1190	1220	1280	1750	1960	---	---	786	---	669
20	1080	1050	1200	1260	1230	1830	1800	637	760	753	610	639
21	1120	1200	1230	1260	1380	1660	1790	629	720	712	610	660
22	1120	1220	1240	---	1240	1600	---	688	669	729	618	780
23	1120	1160	1280	1210	1270	1510	---	---	694	721	640	705
24	1080	1100	1260	1120	1270	1550	1480	611	645	747	---	---
25	1060	1110	1260	1150	1320	1530	1500	1010	619	751	---	810
26	1080	1150	1200	1140	1310	1590	1460	1260	681	750	---	820
27	1060	1170	1240	1280	1330	1640	1480	1360	760	---	681	821
28	1060	1200	1280	1400	1100	1570	---	981	1040	670	700	830
29	1060	1230	1300	1460	1380	1520	1420	911	---	670	710	821
30	1060	---	1280	1440	---	---	1420	---	903	651	710	840
31	1070	---	1260	1360	---	1500	---	776	---	652	738	---
MEAN	1010	1100	1230	1260	1280	1610	1950	803	765	721	648	706

WTR YR 1980 MEAN 1100 MAX 2820 MIN 518

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	32	6.9	55	8.3	107	14	84	9.5	51	4.1	38	4.6
2	24	5.2	39	5.7	122	23	61	6.9	63	6.8	44	5.7
3	38	8.5	42	6.2	110	22	81	7.7	72	9.7	56	6.8
4	52	11	46	7.0	120	23	73	5.9	70	8.5	34	3.7
5	29	6.0	41	6.2	92	14	64	4.3	46	5.6	35	3.6
6	23	4.8	41	6.2	176	29	63	3.7	46	5.6	52	5.6
7	85	18	55	8.3	142	19	61	3.3	42	5.1	66	7.5
8	133	29	59	8.9	254	41	53	2.7	44	5.3	63	7.7
9	166	36	58	8.6	328	50	64	3.1	43	5.2	61	8.2
10	100	21	52	8.0	202	27	79	3.6	54	6.6	66	9.8
11	158	31	47	7.0	201	24	87	4.0	41	4.4	47	7.6
12	146	27	51	7.6	185	20	56	2.6	29	3.1	105	17
13	148	27	78	11	137	13	71	3.5	24	2.6	135	22
14	94	17	96	15	166	15	55	2.8	20	1.9	137	22
15	130	25	63	9.4	121	10	74	4.0	21	1.9	161	26
16	83	17	63	9.0	71	5.8	60	3.2	23	2.2	144	23
17	52	9.8	58	8.6	65	7.9	57	3.1	16	1.7	99	15
18	46	8.2	159	23	79	12	57	2.9	19	2.2	128	17
19	42	7.7	60	8.3	101	18	62	3.0	26	2.9	191	23
20	50	8.9	96	11	63	10	56	2.7	25	3.0	188	20
21	40	6.5	146	12	81	12	58	2.8	26	2.9	191	19
22	32	5.4	167	25	59	8.0	51	2.5	46	5.0	209	20
23	22	3.7	180	24	56	6.8	45	2.3	55	5.6	444	42
24	24	3.9	183	23	60	7.6	71	3.8	60	6.0	359	33
25	18	2.9	120	15	69	9.3	73	3.9	36	3.9	322	29
26	33	5.3	41	4.6	79	10	56	2.7	43	5.2	386	33
27	42	6.6	70	7.6	84	10	62	2.7	88	12	262	22
28	34	5.3	78	7.8	89	10	59	2.7	108	14	271	22
29	50	7.8	54	5.1	98	11	54	2.5	76	9.6	230	19
30	40	6.3	55	5.5	104	11	63	3.1	---	---	161	13
31	41	6.4	---	---	77	7.9	63	3.4	---	---	126	9.9
TOTAL	---	385.1	---	312.9	---	501.3	---	114.9	---	152.6	---	517.7

06088500 MUDDY CREEK AT VAUGHN, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	159	13	42	2.8	1170	894	304	127	1160	1040	263	156
2	205	18	2120	880	1010	736	286	116	1310	1210	305	189
3	158	15	2800	1600	944	729	484	234	1340	1300	301	187
4	218	22	1940	807	901	674	418	214	1140	1190	247	150
5	266	29	1410	544	739	535	630	369	960	918	242	147
6	235	29	1090	391	1010	742	415	196	801	670	238	140
7	186	20	1000	381	1150	879	518	267	706	583	190	108
8	160	15	1080	455	819	557	185	65	720	577	220	116
9	141	13	2060	1020	671	400	175	2570	836	752	306	186
10	116	11	1810	1310	695	418	1780	1240	1000	1060	308	182
11	173	18	1050	757	1260	857	374	116	1240	1400	280	156
12	140	14	1040	708	1110	692	238	60	1230	1390	283	177
13	119	12	1500	1080	1540	1190	280	78	1100	1140	294	191
14	105	9.9	1220	695	969	678	255	78	892	874	289	208
15	128	11	523	179	604	401	223	68	638	531	264	210
16	119	9.3	400	125	424	274	200	55	393	279	246	197
17	117	9.2	1170	647	516	301	211	59	364	263	199	150
18	135	10	872	438	486	261	325	106	446	347	269	195
19	130	9.8	844	460	478	253	503	179	960	889	336	279
20	120	8.7	963	556	450	219	617	273	1160	1190	369	311
21	122	8.6	741	360	445	219	771	445	807	804	206	152
22	122	8.9	686	307	413	195	606	326	656	593	139	73
23	117	9.2	1970	1390	518	274	471	239	616	504	136	65
24	110	8.3	3860	4040	585	330	542	268	525	370	136	62
25	107	8.4	6920	14600	371	179	476	244	377	232	150	69
26	95	6.9	13000	41900	386	174	858	535	332	195	177	78
27	86	6.0	4280	4550	1270	885	1070	809	313	190	125	55
28	79	5.5	2050	1480	674	409	1180	1000	304	170	147	63
29	77	5.2	1250	837	411	212	1000	788	264	145	77	31
30	78	5.3	1120	768	355	158	1040	848	223	120	94	32
31	---	---	1180	886	---	---	721	594	214	110	---	---
TOTAL	---	369.2	---	84153.8	---	14725	---	12566	---	21036	---	4315

TOTAL LOAD FOR YEAR: 139149.5 TONS.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)
MAY											
08...	1230	13.0	158	1060	452	45	63	84	93	99	100
25...	1700	8.0	799	9870	21300	47	61	92	98	99	100
26...	0900	8.0	1440	14400	56000	48	64	94	98	99	100
26...	1840	12.0	672	9020	16400	42	58	90	97	98	100
27...	1420	12.0	385	3540	3680	39	56	87	98	100	--

06089000 SUN RIVER NEAR VAUGHN, MT

LOCATION.--Lat 47°31'37", long 111°29'05", in NW¼SE¼SW¼ sec.33, T.21 N., R.2 E., Cascade County, Hydrologic Unit 10030104, on right bank 3.7 mi (6.0 km) downstream from Muddy Creek, 3.6 mi (5.8 km) southeast of Vaughn, and at mile 13.6 (21.9 km), revised.

DRAINAGE AREA.--1,854 mi^2 (4,802 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July to October 1897 (gage heights and discharge measurements only, published as "near Great Falls"), April 1934 to current year. Monthly discharge only for April 1934, published in WSP 1309.

REVISED RECORDS.--WSP 786: 1934. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,317.12 ft (1,011.058 m) National Geodetic Vertical Datum of 1929. July 11 to Oct. 30, 1897, nonrecording gage at site 0.8 mi (1.3 km) upstream at different datum. Apr. 19 to Aug. 3, 1934, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Flow regulated by Gibson, Pishkun, Willow Creek, and Nilan Reservoirs. Diversions for irrigation of about 110,000 acres (455 km^2) above station.

AVERAGE DISCHARGE.--46 years, 733 ft^3/s (20.76 m^3/s), 531,100 acre-ft/yr (655 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,500 ft^3/s (1,520 m^3/s) June 9, 1964, 42,200 ft^3/s (1,200 m^3/s) in main channel, plus 11,300 ft^3/s (320 m^3/s) in bypass channel, gage height, 23.4 ft (7.13 m) from floodmark; minimum, 20 ft^3/s (0.57 m^3/s) Apr. 24, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1964 exceeded the stage of the June 1908 flood by about 3 ft (0.9 m) and is the highest since 1908, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,200 ft^3/s (204 m^3/s) May 27, gage height, 10.14 ft (3.091 m); minimum daily, 170 ft^3/s (4.81 m^3/s) Jan. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	179	270	215	205	190	210	203	175	4220	2070	455	437
2	177	265	245	205	205	210	204	242	4050	1690	477	438
3	179	266	260	195	215	205	199	394	3890	1300	491	427
4	183	270	255	190	205	200	218	337	3810	1060	568	415
5	177	270	243	185	205	195	234	332	3540	991	569	423
6	175	270	234	180	205	195	259	1660	3170	835	525	410
7	179	268	232	180	205	195	266	2280	3970	781	531	410
8	193	267	218	180	205	205	243	2100	3740	610	604	400
9	243	265	226	180	205	210	226	1650	2970	591	704	402
10	272	266	220	180	205	215	229	1360	2660	668	773	402
11	259	264	210	180	200	225	241	1240	2880	455	792	387
12	254	257	200	185	200	220	241	786	3760	386	781	397
13	260	250	195	185	200	220	214	771	4710	375	754	432
14	269	251	190	185	195	225	203	492	4840	400	732	502
15	275	248	185	185	190	220	200	314	4860	390	684	544
16	283	239	185	185	190	230	204	251	5160	353	611	604
17	282	237	195	185	200	240	203	263	5170	343	623	585
18	280	236	210	180	205	241	194	273	4760	339	677	555
19	286	234	230	180	205	271	189	266	4140	284	784	578
20	312	220	225	180	205	238	188	270	3340	294	774	560
21	299	180	215	185	205	228	188	243	2960	361	737	555
22	290	210	210	190	200	220	186	412	2690	344	691	427
23	281	205	205	195	200	217	188	1490	2330	326	601	358
24	279	200	210	190	195	219	190	3560	2240	295	553	330
25	278	190	215	190	200	199	199	4530	1870	340	511	329
26	266	190	205	185	210	196	210	6180	1730	350	493	320
27	261	190	205	180	220	197	215	6990	2040	377	498	312
28	267	180	200	170	215	192	215	5820	2000	419	474	303
29	270	180	200	175	215	186	205	4150	2080	391	438	293
30	267	195	200	175	---	197	188	3390	2100	396	408	279
31	265	---	195	180	---	195	---	3870	---	431	396	---
TOTAL	7740	7033	6633	5725	5895	6616	6342	56091	101680	18245	18709	12814
MEAN	250	234	214	185	203	213	211	1809	3389	589	604	427
MAX	312	270	260	205	220	271	266	6990	5170	2070	792	604
MIN	175	180	185	170	190	186	186	175	1730	284	396	279
AC-FT	15350	13950	13160	11360	11690	13120	12580	111300	201700	36190	37110	25420

CAL YR 1979 TOTAL 214398 MEAN 587 MAX 5350 MIN 164 AC-FT 425300
WTR YR 1980 TOTAL 253523 MEAN 693 MAX 6990 MIN 170 AC-FT 502900

06089000 SUN RIVER NEAR VAUGHN, MT--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at county bridge 1.8 mi (2.9 km) downstream from gaging station, 4.4 mi (7.1 km) southeast of Vaughn, 5.5 mi (8.8 km) downstream from Muddy Creek, and 7.5 mi (12.1 km) northwest of Great Falls.

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.

REMARKS.--Once-daily water temperatures are available in District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,610 micromhos Apr. 8, 1977, minimum daily, 214 micromhos June 8, 1970.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,360 micromhos Jan. 10; minimum daily, 355 micromhos May 25.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
OCT 03...	1450	183	--	952	8.4	--	15.5	400	150	70	55	63
NOV 08...	1115	279	--	861	--	--	2.5	360	110	67	46	49
DEC 12...	1430	95	--	882	--	--	.0	380	130	76	45	50
JAN 31...	1315	117	0	979	8.3	-1.0	.0	440	140	89	54	54
MAR 07...	1230	197	0	922	8.1	1.0	.0	410	160	83	50	60
APR 23...	1800	188	1	860	8.4	18.0	13.0	340	130	61	45	60
JUN 05...	1030	3570	0	356	8.0	14.0	12.0	170	28	41	16	13
JUL 17...	1600	331	80	700	8.3	22.0	21.0	300	100	59	38	41
SEP 04...	1300	421	0	681	8.0	23.0	15.0	310	110	57	41	39

DATE	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)
OCT 03...	1.4	2.9	250	270	6.4	.5	4.7	626	.85	309	.73	.01
NOV 08...	1.1	2.3	250	210	5.3	.5	6.2	543	.74	409	1.4	.00
DEC 12...	1.1	2.2	250	240	5.4	.4	6.6	580	.79	149	.90	.01
JAN 31...	1.1	2.2	300	220	5.0	.5	9.3	619	.84	196	1.1	.01
MAR 07...	1.3	2.9	250	250	6.2	.5	6.9	614	.84	327	.96	.00
APR 23...	1.4	2.4	210	220	5.3	.3	3.6	526	.72	267	.49	.05
JUN 05...	.4	1.3	140	47	1.3	.2	5.5	210	.29	2020	.16	.01
JUL 17...	1.0	2.3	200	160	3.5	.6	3.5	429	.58	383	.12	.01
SEP 04...	1.0	1.9	200	160	5.2	.5	4.8	431	.59	490	.31	.06

06089000 SUN RIVER NEAR VAUGHN, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	961	868	870	905	931	678	880	906	441	402	730	690
2	951	868	882	841	859	670	860	939	385	437	725	711
3	962	860	791	828	860	767	921	809	369	470	700	680
4	947	862	761	860	850	839	1020	811	382	500	710	681
5	930	860	808	869	840	1020	1140	779	370	510	703	670
6	950	863	862	990	845	1000	1220	521	378	511	710	700
7	948	876	838	983	815	970	1320	420	428	540	719	710
8	931	881	849	1050	820	888	1220	387	398	538	721	691
9	1040	878	863	1080	857	849	1140	382	385	574	719	719
10	866	879	870	1360	851	800	1110	435	409	547	699	690
11	852	874	893	915	861	831	1080	429	416	634	650	710
12	850	863	912	925	840	901	1060	469	432	638	649	740
13	859	873	1140	870	840	936	1140	486	438	651	660	702
14	851	878	1020	856	840	941	1200	510	411	671	680	680
15	839	874	998	870	879	1020	1180	611	414	666	680	675
16	848	880	960	870	899	1020	1180	689	427	669	700	697
17	861	879	908	952	935	986	1050	721	376	700	709	690
18	852	863	970	947	860	931	1010	668	356	710	700	680
19	841	871	940	940	795	865	981	671	362	736	689	687
20	850	872	899	1120	820	907	950	685	388	768	680	670
21	901	880	873	929	851	942	902	684	432	745	671	650
22	909	952	886	930	900	932	890	711	389	762	662	690
23	885	969	880	899	858	931	882	398	435	711	662	719
24	882	918	894	852	870	881	870	399	456	780	695	741
25	869	890	892	838	872	896	871	355	449	810	700	800
26	866	941	885	883	881	908	866	831	461	790	681	810
27	861	942	880	949	830	921	1020	420	605	781	689	790
28	858	980	911	1020	834	921	869	371	560	749	700	830
29	865	969	902	1140	721	936	859	387	481	718	701	830
30	844	971	929	1060	---	945	865	391	439	728	718	840
31	837	---	939	1020	---	899	---	419	---	722	728	---
MEAN	889	894	900	953	852	901	1020	571	422	651	695	719

WTR YR 1980 MEAN 789 MAX 1360 MIN 355

06090300 MISSOURI RIVER NEAR GREAT FALLS, MT

LOCATION.--Lat 47°34'55", long 111°03'35", in NE¼NW¼ sec.14, T.21 N., R.5 E., Cascade County, Hydrologic Unit 10030102, on left bank 100 ft (30 m) downstream from Morony Dam, 12.6 mi (20.3 km) northeast of Great Falls, and at mile 2,105.6 (3,387.9 km).

DRAINAGE AREA.--23,292 mi^2 (60,326 km^2).

PERIOD OF RECORD.--May to July 1953 (in WSP 1320-B), October 1956 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,809.21 ft (856.247 m) National Geodetic Vertical Datum of 1929. Prior to July 27, 1977, nonrecording gage at site 700 ft (213 m) downstream at same datum. October 1971 to July 27, 1977, discharges were obtained from the Montana Power Company at Rainbow Dam 7.05 mi (11.34 km) upstream. Prior to October 1971, Foxboro meters were used for determining discharge through powerplant. Water-stage recorder on Morony Reservoir was used for determining head on taintor gates with datum of gage at National Geodetic Vertical Datum of 1929 (levels by Montana Power Company).

REMARKS.--Records fair. Several observations of water temperature were made during the water year and are available in files of Helena district office. Flow regulated by 18 smaller irrigation reservoirs and powerplants upstream, Clark Canyon Reservoir (station number 06015300), and Canyon Ferry Reservoir (station number 06058500) Diversion for irrigation of about 750,400 acres (3,040 km^2) above station.

AVERAGE DISCHARGE.--24 years, 7,930 ft^3/s (224.6 m^3/s), 5,745,000 acre-ft/yr (7.08 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 72,000 ft^3/s (2,040 m^3/s) June 10, 1964 (from hydrographic comparison with nearby stations); minimum, about 1.0 ft^3/s (0.028 m^3/s) Apr. 16, 1962, powerplant shutdown; minimum daily, 1,760 ft^3/s (82.7 m^3/s) Jan. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4740	4740	4650	6610	6000	6560	6560	7770	18100	19100	7770	4830
2	4530	4700	4610	6510	6350	5800	6200	8060	17900	19100	7830	4570
3	4700	4400	4650	6400	7100	5750	6300	7890	17100	14200	7770	4740
4	4830	3690	4830	6670	5230	5420	6300	7770	20800	12500	8060	4570
5	4570	3960	4480	5560	6150	2950	6400	7770	22300	11300	8120	4780
6	4120	4440	4440	3800	6300	3920	6300	8360	22500	11000	8120	4040
7	4400	4320	4320	2920	6300	5330	6560	9820	22800	10800	7890	4780
8	5280	4610	4480	4870	5850	6300	6560	9880	23600	10600	7150	4650
9	4780	4280	4740	5660	5470	6670	6560	9170	22400	10400	5850	4650
10	4780	4530	5100	5280	4920	6670	6400	7320	20700	11100	5900	3960
11	4240	4480	4530	5470	5010	6460	6460	6200	20700	10000	5560	4200
12	4740	4570	3330	6300	5190	6000	6770	6460	22100	9880	5750	4650
13	4320	4700	3800	7040	5010	5850	6670	6000	23600	10000	6250	4740
14	4780	4320	6050	7540	4440	5900	6670	5560	23800	8790	7150	5330
15	4780	5050	5800	7540	4920	5900	6460	5050	23700	8180	5750	4530
16	4650	4700	3330	7490	4740	6150	6720	4740	24200	9230	5610	4360
17	4200	4280	3760	7320	4780	6000	6770	4400	24900	9230	5510	4700
18	4120	4360	7890	6930	5230	5560	7040	4830	24400	7430	5850	4360
19	4740	5010	8920	6560	5560	5750	7100	4570	24300	7370	6460	4650
20	5100	3760	7430	5610	5950	5900	7210	5050	23700	7430	6250	4570
21	4700	5100	6990	5050	6050	6300	7100	4570	23400	7210	6000	4740
22	4870	4080	6720	6100	5900	6200	8180	5470	22800	7370	5900	4610
23	4360	3960	6510	7260	5800	6100	8300	7770	22200	7890	5050	4440
24	4650	4120	6250	7660	5800	6150	7770	10400	22400	8010	4870	3840
25	4530	4360	6300	7430	5660	6150	7830	13300	21000	7830	4780	4160
26	4160	4440	6350	5800	5470	6150	7950	18100	15400	7660	4780	5140
27	4780	4650	6560	5420	5660	6250	8300	24400	13900	7490	5100	4530
28	4400	4320	6200	5850	6100	6510	7830	22100	21300	7260	5010	3960
29	4320	4360	6250	6150	6720	6510	7830	17400	20700	7260	4920	4120
30	4400	4200	6050	6050	---	6250	7490	15000	18900	7490	5010	4040
31	4400	---	6000	6000	---	6150	---	15400	---	7890	4920	---
TOTAL	141970	132490	171320	190850	163660	183560	210590	290580	645600	301000	190940	135240
MEAN	4580	4416	5526	6156	5643	5921	7020	9374	21520	9710	6159	4508
MAX	5280	5100	8920	7660	7100	6670	8300	24400	24900	19100	8120	5330
MIN	4120	3690	3330	2920	4440	2950	6200	4400	13900	7210	4780	3840
AC-FT	281600	262800	339800	378600	324600	364100	417700	576400	1281000	597000	378700	268200

CAL YR 1979 TOTAL 2541560 MEAN 6963 MAX 17400 MIN 3330 AC-FT 5041000
WTR YR 1980 TOTAL 2757800 MEAN 7535 MAX 24900 MIN 2920 AC-FT 5470000

06090500 BELT CREEK NEAR MONARCH, MT

LOCATION.--Lat 47°12'27", long 110°55'53", in NW¼SE¼NW¼ sec.26, T.17 N., R.6 E., Cascade County, Hydrologic Unit 10030105, on left bank 0.4 mi (0.6 km) south of Riceville, 8.9 mi (14.3 km) northwest of Monarch, and at mile 52.0 (83.7 km).

DRAINAGE AREA.--368 mi^2 (953 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1951 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,962.25 ft (1,207.694 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Water-discharge records good except those for winter period, which are poor. No known regulation or diversion above station.

AVERAGE DISCHARGE.--29 years, 189 ft^3/s (5.352 m^3/s), 136,900 acre-ft/yr (169 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,000 ft^3/s (312 m^3/s) June 4, 1953, gage height, 10.12 ft (3.085 m), from rating curve extended above 4,100 ft^3/s (116 m^3/s) on basis of slope-area measurement of peak flow; no flow Feb. 21, Dec. 24, 1962, caused by ice jams upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1908 was several feet lower than in 1953, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 709 ft^3/s (20.1 m^3/s) May 25, gage height, 3.36 ft (1.024 m), only peak above base of 600 ft^3/s (17.0 m^3/s); maximum gage height, 4.01 ft (1.222 m) Feb. 27 (backwater from ice); minimum discharge, 19 ft^3/s (0.54 m^3/s) Jan. 19, gage height, 0.78 ft (0.238 m), result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	49	40	38	31	34	27	362	619	208	65	50
2	52	43	41	35	32	33	28	359	606	188	65	50
3	54	44	41	33	31	31	25	348	585	180	67	48
4	53	51	44	31	30	31	26	330	536	178	73	46
5	52	48	44	30	30	29	28	312	493	180	68	45
6	51	44	43	28	30	30	31	316	500	175	64	44
7	51	44	43	27	32	32	31	312	461	161	72	42
8	52	45	42	26	32	33	28	302	432	150	76	48
9	54	46	43	25	32	35	29	305	400	146	67	52
10	53	46	44	24	31	35	33	309	404	141	64	49
11	52	48	42	26	31	35	32	273	428	137	62	46
12	51	41	40	28	30	31	31	251	412	129	65	45
13	48	40	40	30	29	29	32	234	416	137	72	48
14	51	42	39	34	28	31	40	217	388	135	68	46
15	52	43	38	34	27	36	51	201	436	127	64	49
16	57	44	38	34	29	30	57	185	420	116	62	52
17	56	48	38	32	31	28	59	178	392	108	59	49
18	53	49	40	28	33	31	79	168	370	107	58	48
19	54	48	41	27	35	31	127	164	344	103	62	49
20	59	44	42	28	34	28	185	152	323	100	58	49
21	57	42	44	30	32	29	270	146	302	95	57	46
22	54	46	43	32	32	28	254	141	276	90	56	46
23	52	47	43	33	34	28	231	146	295	85	59	46
24	52	45	42	32	37	28	270	175	289	82	54	45
25	52	47	42	29	38	27	323	481	248	81	51	44
26	52	46	42	27	39	25	344	615	231	78	50	44
27	52	46	41	26	40	26	340	564	245	75	51	43
28	51	43	41	27	39	26	337	556	234	71	52	42
29	50	41	40	27	38	26	355	544	208	69	51	42
30	50	40	40	27	---	28	385	572	208	68	50	41
31	48	---	41	28	---	25	---	623	---	65	50	---
TOTAL	1626	1350	1282	916	947	929	4088	9841	11501	3765	1892	1394
MEAN	52.5	45.0	41.4	29.5	32.7	30.0	136	317	383	121	61.0	46.5
MAX	59	51	44	38	40	36	385	623	619	208	76	52
MIN	48	40	38	24	27	25	25	141	208	65	50	41
AC-FT	3230	2680	2540	1820	1880	1840	8110	19520	22810	7470	3750	2760

CAL YR 1979 TOTAL 67866 MEAN 186 MAX 1490 MIN 37 AC-FT 134600
WTR YR 1980 TOTAL 39531 MEAN 108 MAX 623 MIN 24 AC-FT 78410

06090500 BELT CREEK NEAR MONARCH, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1977 to current year.

INSTRUMENTATION.--Temperature recorder since July 5, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 20.0°C July 22, 1977; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 19.0°C July 22, 23; minimum, 0.0°C on many days during November to March.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	9.5	7.5	8.5	4.5	3.0	3.5	.0	.0	.0	.5	.0	.0
2	9.5	7.5	9.0	4.0	1.5	2.5	.0	.0	.0	1.5	.0	.5
3	8.0	5.5	7.0	4.0	2.5	3.5	3.0	.0	.5	1.5	.0	1.0
4	10.0	6.5	8.5	4.0	3.0	3.5	4.0	3.0	3.5	.5	.0	.5
5	10.0	8.0	9.5	3.5	2.5	3.0	3.0	1.5	2.0	.5	.0	.0
6	11.0	8.0	9.5	3.5	2.0	2.5	3.5	2.0	2.5	.5	.0	.5
7	11.0	9.5	10.0	3.5	1.5	2.0	2.5	1.5	2.0	.5	.5	.5
8	10.0	6.0	8.0	2.5	2.0	2.5	3.5	1.5	2.5	.5	.0	.0
9	7.5	4.5	6.0	3.0	2.0	2.5	5.0	3.5	4.0	.5	.0	.0
10	9.5	6.5	8.0	3.5	1.0	2.5	4.5	.0	2.0	.5	.0	.0
11	10.5	7.5	9.0	3.0	1.0	1.5	.5	.0	.0	.5	.0	.0
12	10.0	7.5	9.0	2.0	.5	1.0	.0	.0	.0	.0	.0	.0
13	10.0	7.5	8.5	2.0	.0	.5	.0	.0	.0	.0	.0	.0
14	10.0	7.5	8.5	2.5	.5	1.0	.0	.0	.0	.0	.0	.0
15	9.5	8.5	8.5	2.5	1.0	1.5	.0	.0	.0	.0	.0	.0
16	9.5	7.5	8.5	3.0	1.5	2.5	.5	.0	.0	.0	.0	.0
17	8.5	7.0	7.5	4.0	3.0	3.5	.0	.0	.0	.0	.0	.0
18	7.5	4.5	6.0	4.0	2.5	3.5	.0	.0	.0	.0	.0	.0
19	8.0	6.5	7.0	3.5	2.0	2.5	.5	.0	.0	.0	.0	.0
20	6.0	4.5	5.0	1.5	.0	.5	2.5	.5	1.5	.0	.0	.0
21	5.5	4.0	4.5	.0	.0	.0	2.0	1.0	1.5	.0	.0	.0
22	6.0	4.0	5.0	.0	.0	.0	1.5	1.0	1.0	.0	.0	.0
23	7.5	5.5	6.5	.0	.0	.0	1.5	.0	.5	.0	.0	.0
24	7.5	5.5	6.5	.0	.0	.0	1.5	.5	1.0	.0	.0	.0
25	8.0	6.5	7.0	.0	.0	.0	1.5	1.0	1.5	.0	.0	.0
26	8.0	6.0	7.0	.0	.0	.0	1.5	.5	1.0	.0	.0	.0
27	6.0	5.0	5.5	.0	.0	.0	1.0	.0	.5	.0	.0	.0
28	6.5	5.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	6.0	5.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	5.0	3.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	3.5	2.5	3.0	---	---	---	.5	.0	.0	.0	.0	.0
MONTH	11.0	2.5	7.0	4.5	.0	1.5	5.0	.0	1.0	1.5	.0	.0

06090500 BELT CREEK NEAR MONARCH, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	4.0	1.0	2.0	4.5	.5	2.5	10.5	4.5	7.5
2	.0	.0	.0	3.5	1.5	2.5	7.0	3.0	4.0	10.0	5.5	8.0
3	.0	.0	.0	1.5	.0	.5	7.5	3.0	4.5	7.5	5.5	6.0
4	.0	.0	.0	.0	.0	.0	8.0	3.5	5.0	10.5	4.5	7.5
5	.0	.0	.0	.0	.0	.0	7.5	4.0	5.5	12.0	6.5	9.0
6	.0	.0	.0	.0	.0	.0	9.0	4.5	6.0	11.0	7.0	9.0
7	.0	.0	.0	.0	.0	.0	7.5	3.5	5.0	11.0	6.5	8.5
8	.0	.0	.0	.0	.0	.0	6.5	2.5	4.0	9.0	7.0	8.0
9	.0	.0	.0	.0	.0	.0	6.0	4.5	5.0	8.5	7.5	8.0
10	.0	.0	.0	.0	.0	.0	6.5	4.5	5.5	8.0	6.5	7.0
11	.0	.0	.0	3.0	.0	1.5	8.0	4.0	5.5	10.0	4.5	7.0
12	.0	.0	.0	3.5	1.5	2.0	9.0	4.5	6.0	9.0	5.5	7.5
13	.0	.0	.0	3.5	1.0	1.5	9.0	5.5	7.0	10.5	5.5	8.0
14	.0	.0	.0	6.0	1.5	3.0	8.5	6.5	7.5	10.5	6.0	8.0
15	.0	.0	.0	5.0	2.0	3.0	9.0	6.0	7.5	11.5	6.0	8.5
16	.0	.0	.0	4.0	.0	1.5	8.5	4.0	6.5	12.5	8.0	10.0
17	.0	.0	.0	3.5	.5	2.0	10.0	4.5	7.5	12.5	8.0	10.5
18	.0	.0	.0	5.0	2.0	3.0	10.0	5.5	8.0	12.5	8.5	10.5
19	.0	.0	.0	3.0	1.5	2.5	9.0	4.5	7.0	12.5	9.5	11.0
20	.0	.0	.0	5.5	.5	2.5	10.5	5.0	7.5	15.5	9.5	12.5
21	.0	.0	.0	4.0	2.0	3.0	9.0	5.0	7.0	16.0	10.5	13.0
22	.0	.0	.0	5.5	1.0	2.5	8.0	5.5	6.5	15.5	11.0	13.5
23	.0	.0	.0	6.5	2.5	4.0	9.0	5.0	7.0	13.0	9.5	11.0
24	.0	.0	.0	4.5	2.0	3.0	9.0	6.0	7.5	9.5	8.0	9.0
25	.0	.0	.0	5.5	2.0	3.0	10.5	6.0	8.5	9.0	6.5	8.0
26	.0	.0	.0	6.0	1.0	2.5	10.0	5.0	7.5	9.5	5.5	7.5
27	.5	.0	.0	5.0	2.5	3.5	10.5	5.5	8.0	10.5	5.5	8.0
28	2.5	.5	2.0	7.0	2.5	4.0	8.5	5.5	7.5	9.5	6.5	8.0
29	2.0	.5	1.0	7.0	3.0	4.5	8.5	6.0	7.5	9.5	6.5	8.0
30	---	---	---	4.5	.0	2.5	8.0	6.0	6.5	9.0	7.5	8.0
31	---	---	---	2.5	.0	1.0	---	---	---	10.0	6.5	8.0
MONTH	2.5	.0	.0	7.0	.0	2.0	10.5	.5	6.5	16.0	4.5	9.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	11.0	6.0	8.5	16.0	10.5	13.0	17.5	14.0	16.0	12.5	9.5	11.0
2	10.5	7.5	9.0	17.0	11.5	14.5	17.5	12.0	15.0	13.0	11.0	12.0
3	10.0	7.0	8.5	15.5	13.0	14.0	16.5	13.0	14.0	12.0	10.0	11.0
4	11.0	7.0	9.0	16.0	11.0	13.5	15.5	10.5	13.0	12.5	9.5	11.0
5	9.5	7.0	8.5	16.5	12.0	14.0	15.5	10.5	13.5	13.5	10.0	12.0
6	9.0	6.5	7.0	17.5	12.0	14.5	15.5	12.0	14.0	14.5	10.5	13.0
7	9.5	6.0	7.5	17.5	12.5	15.0	15.0	12.0	13.5	14.5	12.0	13.5
8	12.5	6.0	9.0	17.0	13.5	15.0	17.0	11.0	14.0	14.0	11.0	12.5
9	13.5	8.0	10.5	18.0	12.5	15.0	16.0	12.5	14.5	13.5	9.0	11.5
10	13.5	9.5	11.5	17.0	13.0	15.0	16.0	11.0	14.0	13.5	11.0	12.5
11	12.5	10.0	11.0	17.5	11.5	14.5	15.0	12.0	13.5	13.0	12.0	12.5
12	11.5	8.5	10.0	16.5	12.0	14.5	15.0	13.0	13.5	14.0	11.0	12.5
13	12.5	8.0	10.0	15.0	12.5	13.5	15.0	12.0	13.5	13.5	11.0	11.5
14	11.5	8.0	10.0	14.5	11.0	12.5	16.5	11.5	14.0	13.0	11.0	12.0
15	11.0	8.5	10.0	16.5	11.0	13.5	16.0	13.0	14.5	13.0	8.5	10.5
16	14.0	8.0	10.5	17.5	11.0	14.0	15.5	12.0	14.0	11.5	7.5	9.5
17	14.5	9.5	12.0	17.0	13.0	15.0	16.0	12.0	14.0	12.5	10.0	11.0
18	14.5	9.5	12.0	15.5	11.5	13.5	16.0	12.5	13.5	11.5	10.0	10.5
19	15.0	10.5	12.5	14.5	12.0	13.5	14.0	11.0	12.5	12.0	9.5	10.5
20	14.5	10.5	12.5	16.0	10.5	13.0	13.5	11.0	12.5	11.5	9.5	10.5
21	16.0	10.5	13.0	18.0	11.5	15.0	14.5	11.0	13.0	11.0	9.0	9.5
22	15.0	11.5	13.5	19.0	13.0	16.0	14.5	11.0	12.0	10.0	7.5	9.0
23	13.0	10.0	11.0	19.0	13.5	16.0	14.0	10.5	12.0	11.0	8.5	9.5
24	14.5	8.5	11.5	17.0	13.0	15.0	14.5	11.0	13.0	10.0	8.0	8.5
25	16.0	10.5	13.0	18.0	12.0	15.0	14.5	10.5	12.5	10.5	7.0	8.5
26	15.5	12.0	14.0	18.0	13.0	16.0	14.0	10.5	12.5	10.0	7.5	9.0
27	14.0	10.5	12.5	18.0	13.0	15.5	14.0	11.5	12.5	11.0	8.5	10.0
28	15.0	9.5	12.0	18.5	13.0	16.0	13.0	10.0	12.0	10.5	9.5	10.0
29	16.5	10.0	13.0	18.0	14.0	16.5	13.0	10.0	12.0	11.5	8.5	10.0
30	14.5	11.5	13.0	18.0	12.5	15.5	12.0	9.0	10.5	11.5	10.0	10.5
31	---	---	---	17.5	13.0	15.5	11.0	9.5	10.5	---	---	---
MONTH	16.5	6.0	11.0	19.0	10.5	14.5	17.5	9.0	13.0	14.5	7.0	11.0
YEAR	19.0	.0	6.5									

06090800 MISSOURI RIVER AT FORT BENTON, MT

LOCATION.--Lat 47°49'03", long 110°39'59", in SE¼SE¼ sec.23, T.24 N., R.8 E., Chouteau County, Hydrologic Unit 10030102, on left bank at downstream side of abandoned highway bridge at Fort Benton, 3.8 mi (6.1 km) upstream from Shonkin Creek, and at mile 2,073.2 (3,335.8 km).

DRAINAGE AREA.--24,749 mi^2 (64,100 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1890 to current year. Records for June 1881 to September 1890, published in WSP 546 and 761, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 746: 1932. WSP 1146: 1891-1907, 1908(M), 1909-18, 1937-38. WSP 1209: 1948(P). WSP 1309: 1929(M). WSP 1629: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 2,614.05 ft (796.762 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 11, 1920, nonrecording gages, and Oct. 11, 1920, to Apr. 25, 1924, water-stage recorder, all at present site at datum 1.00 ft (0.305 m) higher.

REMARKS.--Water-discharge records good except those for Oct. 1 to Jan. 7 and those for the winter period, which are fair. Flow regulated by 18 smaller irrigation reservoirs and powerplants, Clark Canyon Reservoir (station number 06015300), and Canyon Ferry Reservoir (station number 06058500). Diversions for irrigation of about 75,400 acres (3,400 km^2) above station. Extreme diurnal fluctuation caused by powerplant at Morony Dam.

AVERAGE DISCHARGE.--90 years, 7,779 ft^3/s (220.3 m^3/s), 5,636,000 acre-ft/yr (6.95 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, about 140,000 ft^3/s (3,960 m^3/s) June 6, 1908, gage height, 18.5 ft (5.64 m), present datum, from rating curve extended above 63,000 ft^3/s (1,780 m^3/s); minimum, 320 ft^3/s (9.06 m^3/s) July 5, 1936, gage height, -0.50 ft (-0.15 m); minimum daily, 627 ft^3/s (17.8 m^3/s) July 5, 1936.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 28,100 ft^3/s (796 m^3/s) May 27, gage height, 7.35 ft (2.240 m); maximum gage height, 10.04 ft (3.060 m) Jan. 12 (backwater from ice); minimum daily discharge, 2,460 ft^3/s (69.7 m^3/s) Jan. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4900	4650	4380	6240	6100	6600	6270	8130	19300	20400	7290	4580
2	4530	4480	4520	6100	6400	5900	6310	8370	19300	20500	7430	4310
3	4780	4320	4400	5910	7100	5800	6260	8340	18400	17200	7470	4580
4	4820	4490	4720	6510	5400	5500	6170	8210	21200	14600	7530	4310
5	4660	4500	4380	5920	6200	2900	6370	8070	23000	12700	7600	4790
6	4240	4640	4280	4710	6300	3900	6340	8190	23100	12200	7620	4010
7	4270	4470	4300	2460	6400	5210	6390	9680	23300	11800	7600	4160
8	4910	4710	4430	5000	5900	6240	6510	10200	24700	11700	7120	4730
9	5410	4900	4380	5700	5500	6810	6450	9550	23700	11300	5570	4490
10	4650	4410	4650	5400	5000	6640	6360	7980	21500	11600	5800	4130
11	4400	4320	4790	5500	5100	6630	6470	6370	22000	11700	5170	4130
12	4380	4440	3670	6300	5200	6300	6690	6430	23400	10200	5620	4400
13	4430	4600	3580	7100	5100	5980	6660	6260	25500	10800	5320	4490
14	4140	4350	4830	7600	4500	5760	6680	5680	25500	9660	6630	4880
15	4980	4770	6300	7700	5000	5990	6610	5110	25400	8740	5760	5000
16	4720	4920	4540	7600	4800	6020	6700	4780	25900	9450	5360	3980
17	4280	4100	3120	7400	4900	5980	7000	4750	27100	9780	5190	4700
18	3970	4530	6010	7000	5300	5720	7050	4460	26500	9100	5280	4730
19	4300	4380	8800	6600	5600	5500	7350	4560	26300	7700	5920	4880
20	4910	4460	7200	5900	6000	5580	7510	4830	25400	7520	6080	4760
21	4510	4370	6780	5100	6100	6120	7440	4670	24900	7350	5710	4610
22	4930	4490	6370	6100	6000	6170	8220	4690	24000	7430	5680	4580
23	4320	3520	6020	7400	5900	6090	8710	6740	23400	7660	5100	4460
24	4680	4300	5940	7800	5800	6050	8460	9900	23100	7930	4720	4220
25	4300	4200	6070	7500	5700	6000	8020	15900	22600	7680	4610	3860
26	3760	4200	5770	5900	5500	6320	8470	18300	18200	7460	4360	4730
27	4440	4540	6130	5500	5700	6080	8680	26300	15000	7450	4720	5030
28	4460	4470	5770	5900	6100	6320	8500	24400	21500	7080	4720	4010
29	4020	4300	5810	6200	6800	6360	8250	19900	22200	6890	4780	3860
30	4150	4400	6210	6100	---	6330	8110	17500	20500	6980	4540	3800
31	4320	---	5750	6000	---	6090	---	17100	---	7450	4400	---
TOTAL	139570	133230	163900	192150	165400	182890	215010	305350	685900	320010	180700	133200
MEAN	4502	4441	5287	6198	5703	5900	7167	9850	22860	10320	5829	4440
MAX	5410	4920	8800	7800	7100	6810	8710	26300	27100	20500	7620	5030
MIN	3760	3520	3120	2460	4500	2900	6170	4460	15000	6890	4360	3800
AC-FT	276800	264300	325100	381100	328100	362800	426500	605700	1360000	634700	358400	264200

CAL YR 1979 TOTAL 2679760 MEAN 7342 MAX 19000 MIN 3120 AC-FT 5315000
WTR YR 1980 TOTAL 2817310 MEAN 7698 MAX 27100 MIN 2460 AC-FT 5588000

06090800 MISSOURI RIVER AT FORT BENTON, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965, 1969-73, 1980.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: July to September 1980.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 36 mg/L July 16, 17; minimum daily mean, 7 mg/L Sept. 28.
SEDIMENT LOADS: Maximum daily, 951 tons (863 megagrams) July 17; minimum daily, 76 tons (69 megagrams) Sept. 28.

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
JUL						
14...	1745	20.0	8120	36	789	90
AUG						
19...	1610	19.5	6000	26	421	97
SEP						
26...	1215	12.0	4210	21	239	94

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1							---	---	20	394	11	136
2							---	---	21	421	13	151
3							---	---	23	464	13	161
4							---	---	27	549	14	163
5							---	---	22	451	19	246
6							---	---	19	391	17	184
7							---	---	17	349	21	236
8							---	---	16	308	20	255
9							---	---	15	226	20	242
10							---	---	16	251	30	362
11							---	---	13	181	20	223
12							---	---	16	243	18	214
13							---	---	18	259	20	242
14							35	913	22	394	21	277
15							35	826	20	311	21	283
16							36	919	21	304	18	193
17							36	951	24	336	19	241
18							31	762	20	285	16	204
19							32	665	21	336	17	224
20							27	548	20	328	17	218
21							29	576	19	293	14	174
22							28	562	16	245	14	173
23							30	620	14	193	12	145
24							35	749	12	153	13	148
25							32	664	13	162	13	135
26							26	524	12	141	14	179
27							21	422	14	178	12	163
28							20	382	15	191	7	76
29							19	353	13	168	11	115
30							18	339	12	147	13	133
31							18	362	14	166	---	---
TOTAL							---	11137	---	8818	---	5896

TOTAL LOAD FOR YEAR: 25851 TONS.

06091700 TWO MEDICINE RIVER BELOW SOUTH FORK, NEAR BROWNING, MT

LOCATION.--Lat 48°25'36", long 112°59'17", in SE¼SE¼SE¼ sec. 23, T.31 N., R.11 W., Glacier County, Hydrologic Unit 10030201, on right bank 93 ft (28 m) downstream from bridge on Blackfoot Secondary Highway No. 1, 9.7 mi (15.6 km) south of Browning, 12.3 mi (19.8 km) northwest of Heart Butte.

DRAINAGE AREA.--250 mi^2 (648 km^2)

PERIOD OF RECORD.--May 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,180 ft (1,274 m), from topographic map.

REMARKS.--Records good except those for Apr. 26 to July 15, which are fair, and those for winter period, which are poor. Flow regulated by Lower Two Medicine Lake (station number 06090900). Diversions for irrigation of about 64.0 acres (259,000 m^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,900 ft^3/s (139 m^3/s) May 26, 1980, gage height, 6.69 ft (2.039 m); minimum daily, 10 ft^3/s (0.28 m^3/s) Jan. 29, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 100,000 ft^3/s (2,830 m^3/s) June 8, 1964, as determined at Two Medicine Rive near Browning (station number 06092000) located about 10 mi (16 km) downstream. Stage not determined at this site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,900 ft^3/s (139 m^3/s) May 26, gage height, 6.69 ft (2.039 m); minimum daily, 10 ft^3/s (0.28 m^3/s) Jan. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	20	20	26	20	50	33	1800	1250	524	219	61
2	27	15	25	25	30	60	27	1640	1350	472	215	64
3	28	24	35	25	32	40	36	1670	1320	436	223	82
4	26	22	54	20	33	35	40	1540	1150	394	231	71
5	25	20	50	16	32	45	50	1450	1010	369	218	62
6	25	21	40	15	30	50	74	1430	1030	344	212	57
7	25	16	34	14	28	52	76	1200	990	308	212	57
8	27	18	34	13	26	50	69	1050	890	287	218	55
9	28	20	38	12	25	45	65	977	877	270	247	55
10	26	13	25	13	25	44	68	887	968	257	194	55
11	26	24	20	14	24	49	62	795	1050	255	178	53
12	26	18	22	15	19	45	93	748	1050	225	194	55
13	26	15	30	18	17	40	269	703	1750	213	197	52
14	26	21	25	22	16	37	337	679	1390	204	183	56
15	26	21	17	27	15	35	314	669	1220	186	175	77
16	31	20	25	25	15	32	304	686	1150	176	170	73
17	31	21	60	22	16	36	339	697	1060	169	170	86
18	26	21	70	21	17	41	471	698	977	176	180	77
19	24	15	60	20	19	33	591	748	886	194	215	70
20	27	13	55	22	20	32	762	785	805	189	141	77
21	24	15	40	24	20	38	825	888	737	151	125	88
22	21	30	35	26	19	41	682	1040	683	181	120	82
23	21	25	30	27	18	42	611	1460	649	193	111	75
24	22	20	35	26	20	34	796	1380	597	215	103	70
25	22	19	33	20	25	30	1030	1680	534	224	97	68
26	23	17	32	15	30	33	1020	4140	633	239	75	64
27	25	16	30	12	60	32	1110	2790	799	236	70	59
28	23	15	28	11	60	39	1460	2020	701	233	68	56
29	21	14	27	10	55	47	1650	1640	643	231	68	51
30	20	16	30	12	---	37	2300	1500	579	229	64	53
31	21	---	28	15	---	32	---	1360	---	221	63	---
TOTAL	775	565	1087	583	766	1256	15564	40750	28728	8011	4956	1961
MEAN	25.0	18.8	35.1	18.8	26.4	40.5	519	1315	958	258	160	65.4
MAX	31	30	70	27	60	60	2300	4140	1750	524	247	88
MIN	20	13	17	10	15	30	27	669	534	161	63	51
AC-FT	1540	1120	2160	1160	1520	2490	30870	80830	56980	15890	9830	3890
(†)	0	0	0	0	0	0	58	1740	6970	10950	9400	1270

CAL YR 1979 TOTAL 123968 MEAN 340 MAX 3050 MIN 13 AC-FT 245900
WTR YR 1980 TOTAL 105002 MEAN 287 MAX 4140 MIN 10 AC-FT 208300

† Flows, in acre-ft, in Two Medicine Canal.

06093200 BADGER CREEK BELOW FOUR HORNS CANAL, NEAR BROWNING, MT

LOCATION.--Lat 48°22'12", long 112°48'07", in NW¼SW¼SE¼ sec.8, T.30 N., R.9 W., Glacier County, Hydrologic Unit 10030201, on left bank, 3.4 mi (5.5 km) downstream from point of diversion to Four Horns Canal, 11.6 mi (18.7 km) upstream from mouth, and 15.5 mi (24.9 km) southeast of Browning.

DRAINAGE AREA.--152 mi^2 (394 km^2).

PERIOD OF RECORD.--October 1973 to current year. If monthly figures of diversion to Four Horns Canal are added to records at this site, records equivalent to those published as Badger Creek near Browning (1951-73) can be obtained.

GAGE.--Water-stage recorder. Altitude of gage is 4,140 ft (1,262 m), from topographic map. May 1951 to September 1973, water-stage recorder at site 3.4 mi (5.5 km) upstream at datum 4,179.26 ft (1,273.838 m) National Geodetic Vertical Datum of 1929 (U.S. Water and Power Resources Service bench mark).

REMARKS.--Records fair except those for winter period, which are poor. Four Horns Canal diverts water from right bank in NE¼ sec.24, T.30 N., R.10 W., at diversion dam 3.4 mi (5.5 km) upstream for irrigation of about 6,000 acres (24.3 km^2) below station. Recorded diversions from Badger Creek above station for the current year are listed in daily table below. Several observations of water temperature were made during the the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--29 years (1951-80), 230 ft^3/s (6.514 m^3/s), 20.54 in/yr (522 mm/yr) 166,600 acre-ft/yr (205 hm^3/yr), adjusted for diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,700 ft^3/s (1,410 m^3/s) June 8, 1964, gage height, 10.37 ft (3.161 m), from rating curve extended above 2,000 ft^3/s (56.6 m^3/s) on basis of slope-area measurement of peak flow (site and datum then in use); minimum daily, 7.4 ft^3/s (0.21 m^3/s) Oct. 31, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,260 ft^3/s (92.3 m^3/s) May 26, gage height, 7.80 ft (2.377 m); minimum, 28 ft^3/s (0.79 m^3/s) Nov. 1, gage height, 3.98 ft (1.213 m); minimum gage height, 3.95 ft (1.204 m) Mar. 3-4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	54	33	70	75	60	65	74	557	866	318	92	55
2	70	56	80	74	90	60	68	565	881	272	90	56
3	96	56	115	70	100	50	70	613	814	258	102	59
4	93	56	110	65	80	45	74	626	689	251	109	55
5	94	56	90	60	70	60	77	608	613	238	96	49
6	93	54	80	60	70	60	79	648	607	225	89	45
7	93	54	80	55	65	60	77	613	554	212	89	45
8	98	54	77	45	70	65	72	504	510	206	87	43
9	80	53	80	50	70	65	76	483	526	197	103	44
10	61	54	80	50	70	70	77	472	657	188	96	45
11	61	54	70	50	65	70	77	438	696	183	89	49
12	62	56	70	55	60	65	80	425	650	172	92	52
13	62	70	75	70	55	65	89	414	821	169	90	59
14	65	82	75	85	50	65	105	399	743	166	85	62
15	68	82	60	80	50	70	126	417	689	159	80	73
16	71	84	80	75	55	70	119	438	682	153	79	57
17	68	85	100	75	55	70	123	462	625	149	79	49
18	70	87	140	70	55	70	138	468	583	140	89	46
19	70	87	132	65	60	76	177	517	537	140	140	46
20	71	89	111	70	55	70	245	544	489	149	103	47
21	70	92	99	75	55	70	305	635	452	130	89	50
22	68	74	91	75	55	68	287	683	433	126	84	94
23	65	68	86	75	55	71	247	931	409	120	79	131
24	67	70	83	75	60	70	294	809	377	115	76	130
25	65	65	80	70	65	65	369	943	334	113	74	128
26	62	60	78	60	70	67	469	2700	368	107	79	127
27	67	55	75	50	80	70	485	1660	521	105	87	125
28	68	55	75	45	75	71	493	1220	423	102	59	124
29	67	50	75	40	65	71	531	1010	372	98	58	123
30	67	55	75	45	---	72	649	928	346	98	56	124
31	52	---	75	45	---	68	---	944	---	94	55	---
TOTAL	2218	1946	2667	1954	1885	2054	6152	22674	17267	5153	2675	2192
MEAN	71.5	64.9	86.0	63.0	65.0	66.3	205	731	576	166	86.3	73.1
MAX	98	92	140	85	100	76	649	2700	881	318	140	131
MIN	52	33	60	40	50	45	68	399	334	94	55	43
CFSM	.47	.43	.57	.41	.43	.44	1.35	4.81	3.79	1.09	.57	.48
IN.	.54	.48	.65	.48	.46	.50	1.51	5.55	4.23	1.26	.65	.54
AC-FT	4400	3860	5290	3880	3740	4070	12200	44970	34250	10220	5310	4350
(†)	1550	982	0	0	0	0	1390	4300	1190	4510	4410	3660

CAL YR 1979 TOTAL 65464 MEAN 179 MAX 1510 MIN 21 CFSM 1.18 IN 16.02 AC-FT 129800
WTR YR 1980 TOTAL 68837 MEAN 188 MAX 2700 MIN 33 CFSM 1.24 IN 16.85 AC-FT 136500

† Diversions, by acre-feet, by Four Horns Canal.

06098100 BIRCH CREEK NEAR VALIER, MT

LOCATION.--Lat 48°21'29", long 112°20'13", in SW¼NE¼SE¼ sec.14, T.30 N., R.6 W., Pondera County, Hydrologic Unit 10030201, Blackfoot Indian Reservation, on left bank, 240 ft (73 m) downstream from bridge on State Highway 358, 4.2 mi (6.8 km) downstream from Dupuyer Creek, 5.5 mi (8.8 km) northwest of Valier, and at mile 12.4 (20.0 km), revised.

DRAINAGE AREA.--471 mi^2 (1,220 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,600 ft (1,100 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Flow regulated by Swift Reservoir (station number 06094000). Numerous diversions for irrigation above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,990 ft^3/s (56.4 m^3/s) Mar. 7, 1979, gage height, 5.99 ft (1.826 m); maximum gage height, 8.18 ft (2.493 m) Mar. 18, 1978 (backwater from ice); minimum daily discharge, 8.1 ft^3/s (0.23 m^3/s) May 19, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Outstanding flood occurred June 8, 1964; caused by failure of Swift Dam following extremely heavy rainfall. A discharge of 881,000 ft^3/s (24,900 m^3/s) was determined at the Birch Creek near Dupuyer gage (station number 06095000), about 24 mi (45 km) upstream. The discharge would have been much less by the time it reached this gage site.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,860 ft^3/s (52.7 m^3/s) May 26, gage height, 5.73 ft (1.747 m); minimum daily, 8.1 ft^3/s (0.23 m^3/s) May 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	57	65	50	30	100	70	47	345	227	18	26
2	12	56	70	50	50	90	70	54	295	204	14	25
3	14	58	75	45	60	70	80	50	367	110	13	22
4	15	59	80	35	70	60	90	43	316	70	14	17
5	14	57	75	30	60	45	100	37	196	56	16	16
6	12	57	70	20	56	50	90	32	140	43	23	14
7	15	59	65	18	56	54	85	33	172	36	32	15
8	19	70	65	15	60	58	90	36	172	34	31	13
9	24	71	73	13	62	60	83	36	131	28	40	15
10	25	102	70	12	62	65	80	36	139	40	49	17
11	29	126	60	16	60	65	100	40	275	36	45	22
12	29	125	55	20	55	65	82	41	537	26	41	22
13	32	122	55	35	50	70	73	39	787	28	46	26
14	28	125	55	50	42	70	79	37	989	34	43	34
15	29	128	50	60	44	70	105	30	838	48	39	34
16	31	132	45	65	46	70	115	25	747	48	37	30
17	33	123	55	60	48	70	85	17	791	52	33	23
18	36	109	90	50	50	70	76	14	763	54	34	25
19	49	104	80	45	60	70	75	8.1	722	54	56	28
20	53	75	75	55	58	70	70	9.9	655	51	59	28
21	53	70	70	60	56	70	62	13	596	54	52	31
22	52	75	65	64	58	70	60	12	541	48	50	31
23	50	75	65	62	60	65	58	31	499	42	46	31
24	46	70	55	60	70	64	53	66	466	22	40	28
25	49	70	55	53	90	62	53	271	421	23	36	29
26	60	65	55	40	110	66	54	1530	419	30	38	28
27	58	60	52	30	130	70	47	869	643	34	27	29
28	56	58	50	25	120	75	45	290	625	21	27	31
29	57	56	50	20	110	80	40	185	496	12	28	29
30	56	60	50	22	---	75	38	219	422	12	26	31
31	57	---	50	25	---	70	---	381	---	16	26	---
TOTAL	1105	2474	1945	1205	1883	2109	2208	4532.0	14505	1593	1079	750
MEAN	35.6	82.5	62.7	38.9	64.9	68.0	73.6	146	484	51.4	34.8	25.0
MAX	60	132	90	65	130	100	115	1530	989	227	59	34
MIN	12	56	45	12	30	45	38	8.1	131	12	13	13
AC-FT	2190	4910	3860	2390	3730	4180	4380	8990	28770	3160	2140	1490

CAL YR 1979 TOTAL 48233.0 MEAN 132 MAX 1200 MIN 11 AC-FT 95670
WTR YR 1980 TOTAL 35388.0 MEAN 96.7 MAX 1530 MIN 8.1 AC-FT 70190

06098100 BIRCH CREEK NEAR VALIER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1977 to current year.

REMARKS.--Once-daily water temperatures are available in District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,260 micromhos May 29, 1978; minimum daily, 328 micromhos June 3, 4, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 959 micromhos Apr. 13; minimum daily, 365 micromhos June 10, 11.

WATER-QUALITY DATA, WATER YEAR SEPTEMBER 1979 TO OCTOBER 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
NOV 07...	1500	61	0	602	--	--	1.5	230	24	54	24	38
DEC 21...	0930	70	3	539	--	-1.0	.0	260	9	56	29	44
JAN 25...	0915	53	3	549	8.1	-12.5	.0	240	41	57	24	43
MAR 04...	1700	58	3	528	7.8	-15.0	.0	220	31	54	21	31
APR 16...	1400	100	0	541	8.2	14.5	11.0	210	4	46	24	42
JUN 02...	2130	309	1	458	8.1	12.5	9.5	200	8	48	19	28
JUL 16...	0900	49	1	590	8.4	20.0	15.5	220	11	49	24	46
AUG 27...	1700	37	1	659	8.2	21.0	17.5	230	14	49	27	56

DATE	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)
NOV 07...	1.1	1.6	210	100	3.3	.4	4.2	353	.48	58.1	.20	.00
DEC 21...	1.2	2.1	250	90	3.6	.2	5.8	383	.52	72.4	.34	--
JAN 25...	1.2	1.8	200	100	--	.2	3.9	--	--	--	.45	.05
MAR 04...	.9	3.3	190	66	3.6	.3	5.3	300	.41	47.0	.36	.00
APR 16...	1.3	2.9	210	78	2.7	.2	9.4	332	.45	89.6	.22	.87
JUN 02...	.9	1.6	190	59	1.5	.3	5.0	277	.38	231	.14	.00
JUL 16...	1.3	2.1	210	95	2.6	.5	4.2	350	.48	46.3	.00	.01
AUG 27...	1.6	2.0	220	130	3.6	.4	1.7	402	.55	40.2	.00	.01

06098100 BIRCH CREEK NEAR VALIER, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	709	606	628	608	689	536	552	627	601	409	630	643
2	591	606	621	605	619	531	550	620	529	409	600	620
3	610	581	621	610	613	530	550	620	539	429	620	642
4	602	578	635	641	620	531	550	631	527	499	620	637
5	589	572	624	640	690	533	608	632	610	541	620	611
6	693	583	634	654	620	571	601	631	612	578	618	620
7	696	599	617	671	618	573	601	632	559	659	610	620
8	691	583	608	679	618	520	725	633	555	661	645	619
9	690	575	611	690	618	560	721	627	554	656	652	630
10	688	576	612	686	618	539	731	630	365	638	600	620
11	687	573	738	685	618	538	730	630	365	630	650	621
12	688	575	742	684	618	532	949	660	368	601	640	627
13	690	576	730	680	617	542	959	661	377	548	603	602
14	652	561	740	672	618	540	611	660	371	609	650	618
15	642	564	735	672	615	544	602	664	370	610	620	600
16	641	560	762	680	618	550	603	664	371	547	640	600
17	640	567	767	660	618	559	576	660	368	601	719	605
18	640	578	718	659	600	562	580	651	369	546	640	601
19	610	585	625	660	596	560	578	661	382	549	665	603
20	609	592	625	660	600	560	608	664	382	529	650	604
21	607	598	664	662	602	561	606	668	387	522	660	603
22	604	601	669	657	601	559	608	669	388	523	635	604
23	602	603	748	652	601	561	610	663	387	523	640	603
24	606	600	730	653	601	564	611	690	386	521	729	605
25	610	604	679	651	601	573	651	464	391	601	670	606
26	607	610	680	651	---	574	657	469	408	603	690	604
27	602	652	682	652	---	571	658	552	409	604	710	600
28	600	656	680	681	---	574	641	542	409	605	640	604
29	599	662	702	689	---	579	643	544	399	606	670	604
30	600	670	671	685	---	576	641	545	408	601	720	605
31	603	---	675	686	---	577	---	564	---	600	650	---
MEAN	635	595	677	662	618	554	644	620	438	566	649	613

WTR YR 1980 MEAN 606 MAX 959 MIN 365

06099500 MARIAS RIVER NEAR SHELBY, MT

LOCATION.--Lat 48°25'38", long 111°53'20", in E1/2 NW1/4 SE1/4 sec.20, T.31 N., R.2 W., Toole County, Hydrologic Unit 10030203, on left bank 20 ft (6 m) downstream from bridge on old U.S. Highway 91, 5.1 mi (8.2 km) south of Shelby, 24 mi (39 km) downstream from Cut Bank Creek, and at mile 140.6 (226.2 km), revised.

DRAINAGE AREA.--3,242 mi^2 (8,397 km^2), of which 518 mi^2 (1,342 km^2) is probably noncontributing.

PERIOD OF RECORD.--April 1902 to December 1904, May 1905 to December 1906, May 1907 to January 1908, April 1911 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1903-4, 1918, 1921, 1933, 1935, 1947. WSP 1509: 1902, 1912(M), 1916, 1943(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,087.72 ft (941.137 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 23, 1947, nonrecording gage or water-stage recorder at several sites within 1,000 ft (305 m) of present site at approximately the same datum. Dec. 23, 1947, to Apr. 6, 1976, water-stage recorder at site 150 ft (46 m) downstream at same datum.

REMARKS.--Water discharge records good except those for Oct. 1-24, which are fair, and those for the winter period, which are poor. Several observations of water temperature were made during the year and are available in files of Helena district office. Some regulation by Lower Two Medicine Lake (station number 06090900), Four Horns Reservoir (station number 06093000), Swift Reservoir (station number 06094000), and Lake Frances (station number 06095500), having a combined capacity of 172,630 acre-ft (213 hm^3). Diversion for irrigation of about 50,000 acres (202 km^2) above station and about 15,000 acres (60.7 km^2) below.

AVERAGE DISCHARGE.--72 years, (1902-4, 1905-6, 1911-80), 949 ft^3/s (26.88 m^3/s), 687,600 acre-ft/yr (848 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 241,000 ft^3/s (6,830 m^3/s) June 9, 1964, largely due to failure of Swift Dam, gage height, 23.64 ft (7.205 m), from floodmark, from rating curve extended above 34,000 ft^3/s (963 m^3/s) on basis of slope-area measurement of peak flow; maximum unaffected by dam failure, 75,700 ft^3/s (2,140 m^3/s) June 20, 1975, gage height, 18.21 ft (5.550 m); minimum observed, 10 ft^3/s (0.28 m^3/s) Aug. 20, 1919.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,000 ft^3/s (312 m^3/s) May 27, gage height, 8.57 ft (2.612 m); minimum daily, 100 ft^3/s (2.83 m^3/s) Jan. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	200	200	240	170	200	330	3620	3500	1670	285	256
2	135	187	210	240	200	210	330	3260	3160	1430	280	247
3	140	175	220	230	220	190	320	3050	3390	1260	269	235
4	160	192	230	220	210	160	336	3070	3460	1090	290	225
5	190	190	230	200	210	130	427	2960	2870	966	311	211
6	190	197	230	160	200	150	518	2810	2460	896	296	207
7	180	195	220	130	200	170	553	2750	2410	800	291	192
8	180	185	230	110	190	180	569	2580	2380	730	309	178
9	190	218	240	100	190	200	580	2270	2130	654	325	172
10	200	219	220	105	190	220	543	2140	2110	599	406	165
11	180	238	190	105	180	230	566	2030	2360	599	477	170
12	160	239	200	120	180	230	552	1830	2840	555	456	174
13	170	240	210	160	160	240	522	1700	3240	485	418	177
14	170	250	200	180	150	250	556	1590	4780	464	388	198
15	180	280	160	190	140	250	839	1500	4040	452	369	272
16	180	304	150	190	150	260	1040	1500	3600	448	340	331
17	190	308	200	180	160	280	998	1550	3370	423	316	361
18	190	293	300	170	180	290	975	1590	3150	404	313	355
19	190	274	350	140	200	300	1040	1620	2930	403	469	341
20	200	250	400	150	190	300	1280	1750	2660	427	571	334
21	200	230	370	150	190	310	1550	1870	2450	456	532	320
22	210	240	300	160	190	320	1770	2090	2220	451	436	327
23	205	240	250	160	190	310	1710	2570	2080	409	407	351
24	205	230	260	160	190	300	1540	3680	1950	361	380	394
25	199	220	270	150	200	320	1780	3730	1780	340	350	423
26	198	200	270	130	210	340	2200	7030	1650	326	336	421
27	200	190	270	120	230	360	2300	9630	2230	330	327	407
28	198	180	250	120	220	380	2430	5830	2620	352	316	392
29	196	170	260	110	190	400	2730	4290	2210	319	292	383
30	199	190	250	110	---	350	2890	3660	1940	304	279	366
31	199	---	250	130	---	340	---	3560	---	296	265	---
TOTAL	5719	6724	7590	4820	5480	8170	33774	93110	81970	18699	11099	8585
MEAN	184	224	245	155	189	264	1126	3004	2732	603	358	286
MAX	210	308	400	240	230	400	2890	9630	4780	1670	571	423
MIN	135	170	150	100	140	130	320	1500	1650	296	265	165
AC-FT	11340	13340	15050	9560	10870	16210	66990	184700	162600	37090	22010	17030

CAL YR 1979 TOTAL 315254 MEAN 864 MAX 6090 MIN 133 AC-FT 625300
WTR YR 1980 TOTAL 285740 MEAN 781 MAX 9630 MIN 100 AC-FT 566800

06101200 WILLOW CREEK NEAR GALATA, MT

LOCATION.--Lat 48°26'55", long 111°20'40", in SW¼NE¼NE¼ sec. 16, T.31 N., R.3 E., Toole County, Hydrologic Unit 10030204, on right bank at downstream side of bridge on Bootlegger Trail Road, 0.5 mi (0.8 km) downstream from mouth of West Fork Willow Creek, 1.2 mi (1.9 km) south of U.S. Highway 2, 1.7 mi (2.7 km) south of Galata, and at mile 13.7 (22.0 km).

DRAINAGE AREA.--839 mi^2 (2,173 km^2)

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,040 ft (927 m), from topographic map.

REMARKS.--Records excellent except those for periods of flow, which are poor. No gage-height record Dec. 11 to Feb. 15. Regulation by small irrigation reservoirs upstream. Diversions for irrigation of about 4,150 acres (16.8 km^2). Several observations of water temperature were made during the year and are available in files of Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,180 ft^3/s (33.4 m^3/s) Mar. 27, 1978, gage height, 10.23 ft (3.118 m); no flow many days most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5.8 ft^3/s (0.19 m^3/s) May 25, gage height, 2.69 ft (0.820 m); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.39	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.30	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.35	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.26	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.26	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.39	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.39	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.35	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.35	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.05	.46	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.20	.55	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.50	.46	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	1.0	.42	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.42	.39	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.26	.46	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.10	.46	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.06	.30	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.10	.06	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.12	.15	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.06	.01	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.06	.05	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.18	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.39	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.26	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.30	.00	.45	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.30	.00	.15	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.22	.00	.05	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.10	.00	.02	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.08	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.06	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.26	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	5.08	6.81	.67	.00	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	.16	.23	.022	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	1.0	.55	.45	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	10	14	1.3	.00	.00	.00	.00

CAL YR 1979 TOTAL 7340.82 MEAN 20.1 MAX 300 MIN .00 AC-FT 14560
WTR YR 1980 TOTAL 12.56 MEAN .034 MAX 1.0 MIN .00 AC-FT 25

06101300 LAKE ELWELL NEAR CHESTER, MT

LOCATION.--Lat 48°19'06", long 111°05'27", in NW1/4 sec.33, T.30 N., R.5 E., Liberty County, Hydrologic Unit 10030203, in control house of river outlet tunnel at Tiber Dam on Marias River, 15 mi (24 km) southwest of Chester.

DRAINAGE AREA.--4,923 mi^2 (12,751 km^2), of which 518 mi^2 (1,342 km^2) is probably noncontributing.

PERIOD OF RECORD.--October 1955 to current year (monthend contents only). Daily elevations and contents May to June 1964, published in WSP 1840-B. Prior to October 1975, published as Tiber Reservoir near Chester.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Nonrecording gages read once daily except weekends and holidays. Datum of gage is referenced to National Geodetic Vertical Datum of 1929 (levels by U.S. Water and Power Resources Service). Records of daily elevations on file in Helena district office.

REMARKS.--Reservoir is formed by rolled earthfill dam with concrete spillway chute; construction began in September 1952; completed in March 1956. Storage began Oct. 28, 1955. Usable capacity, 1,347,000 acre-ft (1.66 km^3) between elevation 2,870.00 ft (874.776 m), trashrack sill, and 3,012.50 ft (918.210 m), top of flood control. Dead storage, 21,580 acre-ft (26.6 hm^3) below elevation, 2,870.00 ft (874.776 m). Prior to Oct. 1, 1963, usable capacity was 1,313,000 acre-ft (1.62 km^3) and dead storage was 24,000 acre-ft (29.6 hm^3) at same elevations. Figures given herein represent usable contents. Water is presently used for recreation and flood control.

COOPERATION.--Elevations and capacity table furnished by U.S. Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 1,193,000 acre-ft (1.47 km^3) July 12, 13, 1965 (elevation, 3,005.59 ft or 916.104 m); minimum observed since normal operation began, 442,100 acre-ft (520 hm^3) Apr. 1, 1968 (elevation, 2,953.81 ft or 900.321 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 709,500 acre-ft (875 hm^3) July 1, elevation, 2,978.26 ft (907.774 m); minimum observed, 494,700 acre-ft (610 hm^3) Feb. 27, 28, 29, elevation, 2,960.95 ft (902.498 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	2,966.85	561,300	---
Oct. 31	2,965.48	545,300	- 16,000
Nov. 30	2,964.40	533,000	- 12,300
Dec. 31	2,963.52	523,000	- 10,000
CAL YR 1979			- 26,600
Jan. 31	2,962.07	506,900	- 16,100
Feb. 29	2,960.95	494,700	- 12,200
Mar. 31	2,961.88	504,800	+ 10,100
Apr. 30	2,963.60	523,900	+ 19,100
May 31	2,972.65	632,900	+109,000
June 30	2,978.25	709,400	+ 76,500
July 31	2,973.15	639,400	- 70,000
Aug. 31	2,968.30	578,600	- 60,800
Sept. 30	2,966.04	551,800	- 26,800
WTR YR 1980			- 9,500

06101500 MARIAS RIVER NEAR CHESTER, MT

LOCATION.--Lat 48°18'21", long 111°04'44", in SW1/4 SW1/4 SW1/4 sec.34, T.30 N., R.5 E., Liberty County, Hydrologic Unit 10030203, on left bank 2.0 mi (3.2 km) downstream from Tiber Dam, 4.3 mi (6.9 km) upstream from Pondera Coulee, and 15 mi (24 m) southwest of Chester.

DRAINAGE AREA.--4,927 mi^2 (12,761 km^2), of which 518 mi^2 (1,342 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to September 1921, October 1945 to September 1947, October 1955 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,814.03 ft (857.716 m) National Geodetic Vertical Datum of 1929 (U.S. Water and Power Resources Service bench mark). Prior to Oct. 1, 1921, nonrecording gage at bridge 2.5 mi (4.0 km) downstream at different datum. Oct. 4, 1945, to Sept. 30, 1946, nonrecording gage at site 3 mi (5 km) downstream at different datum.

REMARKS.--Water-discharge records good. Flow completely regulated by Lake Elwell since Oct. 28, 1955 (see preceding page).

AVERAGE DISCHARGE.--27 years (1945-47, 1955-80), 912 ft^3/s (25.83 m^3/s), 660,700 acre-ft/yr (815 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge not determined, occurred about Mar. 20, 1947; minimum, probably less than 0.2 ft^3/s (0.006 m^3/s) during period of no gage-height record Oct. 29 to Nov. 10, 1955, when gates at dam were closed.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1948 reached at stage of 16 ft (4.9 m), present datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,250 ft^3/s (63.7 m^3/s) Aug. 1, gage height, 5.65 ft (1.722 m); minimum daily, 364 ft^3/s (10.3 m^3/s) Feb. 18-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	557	417	392	383	373	368	715	846	1330	1740	2250	923
2	557	416	393	383	373	368	816	856	1340	1740	2250	839
3	562	416	392	383	373	368	862	850	1330	1750	2240	789
4	521	417	391	383	371	368	862	855	1330	1760	1900	698
5	426	412	391	383	368	368	862	947	1330	1760	1660	575
6	403	412	387	385	369	368	862	1270	1330	1760	1610	576
7	402	412	390	383	368	368	862	1380	1320	1770	1490	573
8	406	407	387	383	368	368	862	1380	1320	1780	1480	590
9	407	407	387	383	368	368	862	1380	1320	1790	1490	604
10	406	406	386	378	368	368	862	1370	1320	1790	1470	606
11	407	407	387	378	368	369	862	1370	1320	1780	1410	604
12	412	407	387	376	368	369	861	1370	1390	1790	1310	608
13	411	405	387	375	365	368	858	1370	1460	1800	1310	608
14	410	403	386	373	368	368	858	1370	1460	1790	1310	610
15	408	402	383	373	368	368	856	1370	1470	1790	1300	606
16	407	402	383	373	368	368	855	1370	1460	1790	1290	621
17	411	402	383	373	367	358	855	1370	1470	1780	1290	636
18	412	402	383	373	364	368	855	1360	1480	1780	1190	636
19	412	402	383	373	364	368	855	1360	1490	1770	1130	641
20	407	402	383	373	364	368	855	1360	1490	1760	1110	639
21	414	402	383	372	364	368	847	1360	1500	1760	1110	641
22	413	397	383	373	364	368	853	1360	1520	1760	1110	641
23	412	397	385	373	364	368	855	1350	1530	1740	1100	647
24	412	397	383	370	364	368	855	1350	1540	1740	1100	647
25	412	393	383	370	364	368	857	1350	1540	1750	1090	647
26	412	393	383	370	364	421	860	1350	1550	1750	993	641
27	412	392	383	373	364	509	855	1350	1640	1760	932	641
28	412	392	383	372	369	578	854	1350	1710	1750	931	641
29	412	392	383	358	371	604	848	1340	1720	1760	925	641
30	417	392	383	368	---	605	845	1350	1730	1770	928	638
31	417	---	383	373	---	649	---	1340	---	1960	921	---
TOTAL	13289	12103	11956	11649	10651	12568	25526	39654	43740	54970	41630	19407
MEAN	429	403	386	376	367	405	851	1279	1458	1773	1343	647
MAX	562	417	393	385	373	649	862	1380	1730	1960	2250	923
MIN	402	392	383	368	364	368	715	846	1320	1740	921	573
AC-FT	26360	24010	23710	23110	21130	24930	50630	78650	86760	109000	82570	38490

CAL YR 1979 TOTAL 369439 MEAN 1012 MAX 2130 MIN 383 AC-FT 732800
WTR YR 1980 TOTAL 297143 MEAN 812 MAX 2250 MIN 364 AC-FT 589400

06101500 MARIAS RIVER NEAR CHESTER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-72, 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1964 to September 1972, January 1978 to current year.

REMARKS.--Once-daily water temperatures are available in District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 791 micromhos May 3, 1979; minimum daily, 388 micromhos Aug. 17, 18, 21, 1972.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 731 micromhos Apr. 14, 15; minimum daily, 509 micromhos Sept. 2, 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
NOV											
01...	1045	412	1	582	8.4	5.0	11.0	1.3	11.5	115	< 1
28...	1100	393	1	580	8.5	-2.0	6.0	.70	12.7	110	< 1
DEC											
19...	0900	369	1	588	8.3	3.0	2.5	2.7	12.8	104	< 1
JAN											
16...	1400	372	2	656	8.4	5.0	2.5	.70	13.5	110	< 1
FEB											
14...	1400	368	1	710	8.3	-9.0	2.5	.90	14.0	112	K20
MAR											
13...	1000	367	1	698	8.4	5.0	3.5	.70	13.5	113	K8
APR											
16...	1000	858	0	675	8.3	14.0	4.0	1.3	13.1	109	< 1
MAY											
22...	1400	1360	1	654	8.3	32.0	10.0	2.2	11.7	115	< 1
JUN											
26...	1530	1550	2	599	8.5	22.0	14.5	1.2	10.8	116	K1
JUL											
24...	0900	1730	2	579	8.3	18.0	16.5	.90	9.8	109	K2
AUG											
26...	1530	946	0	538	8.5	23.5	20.0	2.0	9.7	117	K1
SEP											
24...	1100	663	2	551	8.6	10.0	14.0	1.4	9.8	103	< 1

DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)
NOV											
01...	K3	210	82	47	23	38	1.1	2.2	130	160	3.7
28...	K3	230	89	52	24	39	1.1	2.5	140	170	3.8
DEC											
19...	K1	210	70	48	22	38	1.1	2.3	140	150	3.8
JAN											
16...	K1	240	94	53	27	43	1.2	2.3	150	180	4.0
FEB											
14...	24	290	120	62	32	49	1.3	2.4	170	200	5.1
MAR											
13...	K14	270	100	60	30	48	1.3	2.4	170	200	4.7
APR											
16...	< 1	250	89	55	27	44	1.2	2.3	160	190	4.6
MAY											
22...	< 1	250	110	54	27	43	1.2	2.4	140	170	4.4
JUN											
26...	K5	230	85	49	25	40	1.2	2.3	140	160	3.8
JUL											
24...	K2	210	85	48	23	37	1.1	2.1	130	160	3.3
AUG											
26...	K1	200	71	46	21	32	1.0	1.7	140	130	3.2
SEP											
24...	K1	200	74	47	21	34	1.0	2.2	140	140	3.5

06101500 MARIAS RIVER NEAR CHESTER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)
NOV										
01...	.2	3.4	365	356	.50	406	.17	.18	.03	.03
28...	.2	3.0	389	379	.53	413	.15	.16	.04	.01
DEC										
19...	.3	3.4	413	353	.56	411	.19	.16	.02	.02
JAN										
16...	.3	3.5	420	404	.57	422	.20	.19	.02	.00
FEB										
14...	.2	3.5	458	458	.62	455	.22	.25	.00	.10
MAR										
13...	.2	3.3	456	452	.62	452	.19	.19	.06	.02
APR										
16...	.2	3.5	436	424	.59	1010	.21	.22	.00	.00
MAY										
22...	.2	3.5	415	390	.56	1520	.23	.22	.06	.12
JUN										
26...	.3	3.2	374	368	.51	1570	.19	.03	.09	.01
JUL										
24...	.3	3.6	361	357	.49	1690	.22	.24	.00	.04
AUG										
26...	.2	3.4	338	316	.46	863	.08	.07	.04	.04
SEP										
24...	.2	3.6	341	330	.46	610	.08	.11	.00	.00

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N) (00607)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	IRON, DISSOLVED (UG/L AS FE) (01046)
NOV										
01...	.40	.29	.43	.32	.01	.00	4.6	--	--	--
28...	.33	.35	.37	.36	.01	.01	--	8.7	.0	< 10
DEC										
19...	.51	.51	.53	.53	.01	.00	3.5	--	--	--
JAN										
16...	.76	.80	.78	.80	.01	.00	3.8	--	--	--
FEB										
14...	.52	.42	.52	.52	.01	.01	--	3.0	.1	10
MAR										
13...	.29	.36	.35	.38	.01	.01	4.9	--	--	--
APR										
16...	.43	.38	.43	.38	.01	.01	6.0	--	--	--
MAY										
22...	1.4	1.1	1.5	1.2	.02	.02	--	2.6	.1	< 10
JUN										
26...	.91	.57	1.0	.58	.00	.01	6.2	--	--	--
JUL										
24...	.67	.38	.67	.42	.02	.01	3.5	--	--	--
AUG										
26...	.63	.56	.67	.60	.01	.02	--	11	.1	< 10
SEP										
24...	.38	.42	.38	.42	.01	.01	6.6	--	--	--

06101500 MARIAS RIVER NEAR CHESTER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
NOV 28...	1100	2	2	200	60	0	< 1	0	0	0
DEC 19...	0900	--	--	--	--	--	--	--	--	--
FEB 14...	1400	1	2	200	70	3	2	0	0	0
MAR 13...	1000	--	--	--	--	--	--	--	--	--
MAY 22...	1400	1	1	100	70	1	< 1	0	0	0
JUN 26...	1530	--	--	--	--	--	--	--	--	--
AUG 26...	1530	2	1	100	70	0	< 1	0	0	0
SEP 24...	1100	--	--	--	--	--	--	--	--	--

DATE	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
NOV 28...	< 3	0	0	70	< 10	3	2	0	< 1	.1
DEC 19...	--	--	--	--	--	--	--	--	--	--
FEB 14...	< 3	5	0	90	10	7	0	10	8	.0
MAR 13...	--	--	--	--	--	--	--	--	--	--
MAY 22...	< 3	12	11	10	< 10	0	0	10	4	.0
JUN 26...	--	--	--	--	--	--	--	--	--	--
AUG 26...	< 3	5	2	110	< 10	5	2	0	< 1	.1
SEP 24...	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV 28...	.0	4	0	1	1	1	0	10	5
DEC 19...	--	--	--	--	--	0	--	--	--
FEB 14...	.0	0	2	1	1	0	0	20	20
MAR 13...	--	--	--	--	--	3	--	--	--
MAY 22...	.0	20	4	2	2	0	0	20	< 3
JUN 26...	--	--	--	--	--	0	--	--	--
AUG 26...	.1	6	0	1	1	0	0	40	< 3
SEP 24...	--	--	--	--	--	0	--	--	--

06101500 MARIAS RIVER NEAR CHESTER, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	561	584	595	582	681	708	704	651	639	581	543	510
2	562	587	600	590	695	709	706	671	640	575	551	509
3	563	590	601	612	690	707	709	679	651	578	545	509
4	564	590	600	613	695	708	711	680	650	575	542	510
5	569	589	601	613	698	709	710	684	640	570	541	534
6	569	586	603	614	696	708	720	690	650	570	538	532
7	570	583	600	614	695	709	720	689	651	566	535	530
8	571	587	601	613	693	708	720	671	642	569	537	532
9	571	589	600	620	691	709	720	670	636	579	532	535
10	568	586	599	625	690	707	720	670	629	570	530	530
11	569	582	597	641	691	706	722	671	645	570	531	530
12	570	584	596	642	691	707	721	676	639	579	531	521
13	571	580	597	643	690	707	730	669	617	561	530	520
14	571	583	599	648	694	708	731	682	613	560	531	530
15	572	585	599	652	700	709	731	672	608	570	532	525
16	572	585	596	655	696	707	699	671	609	562	532	522
17	567	583	591	654	697	705	728	670	609	559	530	522
18	570	583	591	653	694	706	690	672	602	560	531	521
19	572	581	590	659	697	708	699	672	606	559	530	522
20	572	581	591	663	698	707	729	670	599	551	530	523
21	575	583	590	667	699	701	725	672	597	551	530	519
22	575	586	592	669	702	710	701	663	599	553	532	515
23	572	588	595	672	700	708	716	671	600	571	532	515
24	572	589	590	676	700	707	712	670	596	556	533	517
25	574	590	592	680	700	704	716	660	601	550	533	519
26	576	588	591	685	699	704	712	661	599	550	534	519
27	576	590	591	688	700	704	680	660	601	549	531	519
28	577	590	591	685	701	703	681	661	571	548	537	512
29	578	592	592	691	704	704	671	677	600	549	532	513
30	577	596	592	692	---	705	685	662	572	551	531	517
31	579	---	591	689	---	705	---	663	---	547	538	---
MEAN	571	586	595	648	696	707	711	671	617	563	534	521

WTR YR 1980 MEAN 618 MAX 731 MIN 509

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV						
01...	1045	11.0	412	5	5.6	80
28...	1100	6.0	393	3	3.2	82
DEC						
19...	0900	2.5	369	5	5.0	81
JAN						
16...	1400	2.5	372	3	3.0	74
FEB						
14...	1400	2.5	368	5	5.0	60
MAR						
13...	1000	3.5	367	3	3.0	--
APR						
16...	1000	4.0	858	3	6.9	78
MAY						
22...	1400	10.0	1360	6	22	71
JUN						
26...	1530	14.5	1550	4	17	78
JUL						
24...	0900	16.5	1730	4	19	91
AUG						
26...	1530	20.0	946	4	10	89
SEP						
24...	1100	14.0	663	4	7.2	73

06101500 MARIAS RIVER NEAR CHESTER, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO JUNE 1980

DATE	NOV 28,79	MAR 13,80	MAY 22,80	JUN 26,80
TIME	1100	1000	1400	1530
TOTAL CELLS/ML	750	340	400	100
DIVERSITY: DIVISION	1.2	0.0	0.8	0.0
.CLASS	1.2	0.0	0.8	0.0
..ORDER	1.3	0.2	0.8	1.0
...FAMILY	1.7	1.0	0.9	1.8
....GENUS	1.7	1.0	0.9	1.8

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....CHLORELLA	13	2	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	13	2	10	3	--	-	--	-
....MELOSIRA	--	-	--	-	--	-	52#	50
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	45	6	--	-	--	-	13	13
....COCCONEIS	19	3	--	-	--	-	--	-
...CYMBELLACEAE								
....AMPHORA	--	-	--	-	--	-	26#	25
....CYMBELLA	--	-	5	1	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	280#	82	--	-	13	13
...FRAGILARIACEAE								
....SYNEDRA	13	2	--	-	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	10	3	--	-	--	-
...NAVICULACEAE								
....NAVICULA	52	7	--	-	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	6	1	35	10	13	3	--	-
...TABELLARIACEAE								
....TABELLARIA	6	1	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	26	6	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	520#	70	--	-	26	6	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	330#	84	--	-
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	45	6	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...PETALOMONADACEAE								
....CALYCOMONAS	6	1	--	-	--	-	--	-

06101500 MARIAS RIVER NEAR CHESTER, MT--Continued

PHYTOPLANKTON ANALYSES, JULY 1980 TO SEPTEMBER 1980

DATE	JUL 24,80	AUG 26,80	SEP 24,80
TIME	0900	1530	1100
TOTAL CELLS/ML	64	460	150
DIVERSITY: DIVISION	0.7	0.5	0.8
.CLASS	0.7	0.5	0.8
..ORDER	0.7	1.2	0.8
...FAMILY	0.7	1.2	0.8
....GENUS	0.7	1.2	0.8

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....OOCYSTIS	--	-	--	-	13	8
...SCENEDESMACEAE						
....SCENEDESMUS	51#	80	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..PENNALES						
...NITZSCHIACEAE						
....NITZSCHIA	13#	20	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	52	11	13	8
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROCOCCACEAE						
....ANACYSTIS	--	-	90#	19	130#	83
..HORMOGONALES						
...NOSTOCACEAE						
....APHANIZOMENON	--	-	320#	69	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06101560 PONDERA COULEE NEAR CHESTER, MT

LOCATION.--Lat 48°16'14", long 111°08'42", in SE¼SE¼NE¼ sec.13, T.29 N., R.4 E., Liberty County, Hydrologic Unit 10030203, on left bank 75 ft (23 m) upstream from bridge on county road, 8.5 mi (13.7 km) upstream from mouth, and 19.0 mi (30.6 km) southwest of Chester.

DRAINAGE AREA.--598 mi^2 (1,549 km^2).

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,940 ft (896 m), from topographic map.

REMARKS.--Records good except those for Nov. 7 to Apr. 3, which are poor, and those for Apr. 17 to May 14, which are fair. Natural flow of stream affected by numerous storage reservoirs upstream and diversions for irrigation of about 1,800 acres (7.3 km^2) above station. Several observations of water temperature were made during the year and are available in files of the Helena district office.

AVERAGE DISCHARGE.--5 years, 21.6 ft^3/s (0.612 m^3/s), 15,650 acre-ft/yr (19.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,580 ft^3/s (101 m^3/s) Mar. 26, 1978, gage height, 13.3 ft (4.05 m), from floodmark; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 1,950 ft^3/s (55.2 m^3/s) June 8, 1964, gage height, 12.10 ft (3.688 m), from contracted-opening measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 94 ft^3/s (2.66 m^3/s) May 29, gage height, 4.41 ft (1.344 m), only peak above base of 50 ft^3/s (1.42 m^3/s); no flow most of winter period.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	2.1	.05	.10	.00	4.0	15	.87	34	32	.33	7.0
2	4.3	1.6	.10	.10	.00	5.0	16	.59	31	29	.13	5.2
3	5.1	1.4	.10	.10	.00	3.0	17	.59	29	27	.09	4.0
4	6.1	1.3	.10	.05	.00	2.0	16	.46	27	26	10	2.7
5	7.7	.86	.10	.05	.00	1.0	16	.59	30	26	18	1.7
6	7.4	.73	.10	.00	.00	1.0	17	.46	36	22	22	.80
7	5.8	.70	.10	.00	.00	2.0	13	.41	39	19	25	.46
8	5.2	.70	.15	.00	.00	5.0	12	.25	34	14	23	.24
9	6.0	.70	.15	.00	.00	10	12	.22	33	9.6	22	.15
10	7.1	.70	.10	.00	.00	15	13	.17	33	8.2	19	.11
11	10	.80	.05	.00	.00	20	23	.13	31	7.5	20	.09
12	13	.80	.05	.00	.00	22	27	.12	28	6.5	27	.10
13	8.9	.80	.05	.00	.00	21	24	.08	30	5.1	32	.07
14	7.4	.85	.05	.00	.00	22	23	.08	28	4.1	32	.06
15	6.5	.85	.05	.00	.00	24	33	.06	25	2.0	29	.05
16	9.4	.85	.05	.00	.00	23	28	.05	29	.72	28	.06
17	13	.90	.05	.00	.00	21	27	.05	30	1.2	34	.07
18	11	.70	.10	.00	.00	22	29	.04	30	22	28	2.9
19	10	.50	.15	.00	.00	24	27	.05	29	23	25	3.3
20	10	.40	.15	.00	.00	25	16	.04	29	16	20	2.7
21	7.9	.30	.15	.00	.00	26	15	.04	28	8.5	20	4.0
22	8.9	.20	.10	.00	.00	25	11	.05	20	5.5	20	7.1
23	7.5	.15	.10	.00	.00	25	9.1	.07	16	3.4	20	8.2
24	5.7	.10	.10	.00	.00	24	7.1	.08	13	1.8	19	8.0
25	4.4	.05	.10	.00	.00	23	5.3	.19	9.0	3.6	19	8.9
26	3.2	.05	.10	.00	.00	24	3.9	10	11	8.8	20	11
27	2.4	.05	.10	.00	1.0	22	2.7	21	25	6.6	21	12
28	2.3	.05	.10	.00	3.0	19	3.4	46	25	3.9	17	13
29	2.1	.05	.10	.00	5.0	17	2.5	84	27	2.9	14	12
30	1.5	.05	.10	.00	---	16	1.4	67	30	1.8	11	11
31	1.7	---	.10	.00	---	15	---	44	---	.46	9.2	---
TOTAL	206.5	19.29	2.95	.40	9.00	508.0	465.4	277.74	819.0	348.18	604.75	126.96
MEAN	6.66	.64	.095	.013	.31	16.4	15.5	8.96	27.3	11.2	19.5	4.23
MAX	13	2.1	.15	.10	5.0	26	33	84	39	32	34	13
MIN	1.5	.05	.05	.00	.00	1.0	1.4	.04	9.0	.46	.09	.05
AC-FT	410	38	5.9	.8	18	1010	923	551	1620	691	1200	252

CAL YR 1979 TOTAL 10899.48 MEAN 29.9 MAX 1690 MIN .00 AC-FT 21620
WTR YR 1980 TOTAL 3388.17 MEAN 9.26 MAX 84 MIN .00 AC-FT 6720

06108000 TETON RIVER NEAR DUTTON, MT

LOCATION.--Lat 47°55'45", long 111°33'12", near center of south line of SW¼ sec.12, T.25 N., R.1 E., Teton County, Hydrologic Unit 10030205, on right bank 150 ft (45.7 m) upstream from Kerr Bridge, 0.9 mi (1.4 km) downstream from Hunt Coulee, 9.5 mi (15.3 km) northeast of Dutton, and at mile 100.9 (162.3 km).

DRAINAGE AREA.--1,307 mi^2 (3,385 km^2). Area at site used prior to July 17, 1965, 1,308 mi^2 (3,388 km^2).

PERIOD OF RECORD.--August 1954 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,235 ft (986 m), from topographic map. Prior to July 17, 1965, water-stage recorder at site 1,800 ft (549 m) downstream at datum 1.97 ft (0.600 m) lower.

REMARKS.--Records fair except those for winter period, which are poor. No gage-height record Nov. 21 to Dec. 18, Mar. 11-14, Apr. 3-23, and June 6 to July 16. Water is diverted on left bank in sec.34, T.25 N., R.7 W., for storage in Bynum Reservoir (usable capacity, 75,000 acre-ft or 92.5 hm^3). Diversions for irrigation of about 44,000 acres (178 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--26 years, 168 ft^3/s (4.758 m^3/s), 121,700 acre-ft/yr (150 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 71,300 ft^3/s (2,020 m^3/s) June 9, 1964, gage height, 20.48 ft (6.242 m), present site and datum, from floodmark, from slope-area measurement of peak flow; minimum discharge, 4.3 ft^3/s (0.12 m^3/s) Aug. 3, 4, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,490 ft^3/s (70.5 m^3/s) May 26, gage height, 6.39 ft (1.948 m); minimum daily, 30 ft^3/s (0.85 m^3/s) Jan. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	51	40	57	64	130	196	102	860	353	60	64
2	38	50	42	58	98	110	182	113	695	314	55	61
3	38	51	43	56	98	98	169	122	592	276	53	62
4	38	52	43	54	94	94	164	112	829	248	59	54
5	39	53	43	50	88	90	171	104	660	229	70	51
6	38	56	43	46	80	95	206	99	525	211	70	50
7	38	49	45	40	72	105	242	87	530	196	73	50
8	38	62	50	37	66	120	301	75	939	182	77	50
9	38	62	56	33	62	130	295	75	714	164	74	49
10	40	59	60	30	60	130	259	85	573	149	79	49
11	40	59	56	31	57	140	253	99	504	128	93	51
12	38	56	50	45	52	150	240	106	596	115	85	51
13	36	52	54	80	50	170	274	103	680	112	83	53
14	36	59	60	90	47	200	307	99	950	107	88	60
15	38	63	50	80	45	300	357	89	855	112	89	64
16	38	59	40	68	50	280	393	84	666	108	86	70
17	38	63	47	60	56	270	374	83	573	102	82	72
18	38	60	64	55	70	250	353	82	509	95	80	72
19	39	55	65	53	90	235	298	74	448	92	83	76
20	42	49	60	60	86	250	268	69	385	100	89	70
21	42	40	58	66	86	290	229	66	378	102	83	65
22	42	43	57	80	86	270	196	71	364	94	76	61
23	44	47	57	80	90	245	171	73	340	90	74	59
24	44	47	58	70	110	220	158	86	407	86	79	58
25	43	45	59	60	145	230	146	374	371	75	75	55
26	44	41	58	52	140	250	148	1920	320	73	70	56
27	43	39	56	46	130	220	144	2180	407	80	64	62
28	44	37	55	41	120	175	138	1300	618	76	61	59
29	45	37	54	38	125	189	121	797	547	75	62	56
30	47	38	54	36	---	191	111	630	422	63	63	53
31	52	---	54	40	---	191	---	676	---	62	64	---
TOTAL	1257	1534	1631	1692	2417	5818	6864	10035	17257	4269	2299	1763
MEAN	40.5	51.1	52.6	54.6	83.3	188	229	324	575	138	74.2	58.8
MAX	52	63	65	90	145	300	393	2180	950	353	93	76
MIN	36	37	40	30	45	90	111	66	320	62	53	49
AC-FT	2490	3040	3240	3360	4790	11540	13610	19900	34230	8470	4560	3500

CAL YR 1979 TOTAL 63165 MEAN 173 MAX 3000 MIN 36 AC-FT 125300
WTR YR 1980 TOTAL 56836 MEAN 155 MAX 2180 MIN 30 AC-FT 112700

06109500 MISSOURI RIVER AT VIRGELLE, MT

LOCATION.--Lat 48°00'14", long 110°15'19", in SW¼SW¼SE¼ sec.13, T.26 N., R.11 E., Chouteau County, Hydrologic Unit 10040101, on left bank 0.2 mi (0.3 km) upstream from Virgelle ferry, 0.6 mi (1.0 km) southwest of Virgelle, 1.8 mi (2.9 km) downstream from Spring Coulee, and at mile 2,034.2 (3,273.0 km), revised.

DRAINAGE AREA.--34,379 mi^2 (89,042 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1935 to current year. Prior to October 1953, published as "at Loma."

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,507.50 ft (764.286 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1953, water-stage recorder at Loma, 18 mi (29 km) upstream, at datum 2,543.40 ft (775.228 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for winter period, which are fair. Flow regulated by 23 smaller irrigation reservoirs and powerplants, Clark Canyon Reservoir (station number 06015300), Canyon Ferry Reservoir (station number 06058500), and Lake Elwell (station number 06101300). Diversions for irrigation of about 850,400 acres (3,440 km^2) above station.

AVERAGE DISCHARGE.--45 years, 8,621 ft^3/s (244.1 m^3/s), 6,246,000 acre-ft/yr (7.70 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 122,000 ft^3/s (3,460 m^3/s) June 5, 1953, gage height, 23.4 ft (7.13 m), from floodmark, from rating curve for former site at Loma extended above 66,000 ft^3/s (1,870 m^3/s), adjusted to present site; minimum daily, 638 ft^3/s (18.1 m^3/s) July 5, 1936.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1908 reached a stage about 2 ft (0.6 m) higher than that of June 5, 1953, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 28,500 ft^3/s (807 m^3/s) May 28, gage height, 9.55 ft (2.911 m); minimum daily, 3,300 ft^3/s (93.5 m^3/s) Jan. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5220	4820	4960	6800	6500	7300	6850	8580	19500	21900	9040	5380
2	5020	5020	5020	6740	6600	7100	7150	8860	20800	22200	9330	5290
3	4900	5000	5150	6620	6900	6400	7010	9000	20000	21600	9400	5160
4	5090	4750	5030	7000	7600	6300	7020	8890	20800	15900	9420	4970
5	5200	4800	5090	7100	5900	6000	7210	8690	23700	14900	9390	4980
6	4890	5050	4880	5100	6700	3500	7160	8520	24000	14000	9080	5060
7	4430	4960	4850	3400	6800	4500	7120	9680	24200	13600	8940	4630
8	4860	4950	4770	3300	6900	5700	7320	11200	25300	13400	8600	5060
9	5800	5290	4890	5500	6400	6700	7320	10700	25300	13100	7640	4920
10	4740	5010	5030	6200	6000	7300	7400	9750	23600	12900	7050	5260
11	4870	4830	5430	5900	5500	7100	7410	8020	22700	13600	6670	4150
12	4610	4810	5180	6000	5600	7100	7490	7410	23700	11900	6590	4610
13	4950	4960	4190	6800	5700	6800	7540	7610	25700	12300	6400	4960
14	4430	4970	4260	7600	5600	6500	7660	6920	26600	12100	7330	5030
15	5170	4620	6590	8100	5000	6300	7530	6450	26700	10400	7700	5830
16	5040	5460	6150	8200	5500	6500	7620	6060	26900	10500	6580	4760
17	4760	4890	3730	8100	5300	6500	7930	5720	28000	11300	6270	4860
18	4530	4700	4690	7900	5400	6340	7940	5330	27700	11100	6310	5100
19	4380	4680	9920	7500	5800	6230	8260	5590	27500	9930	6710	5240
20	5150	5810	8690	7100	6100	6280	8230	5300	27100	9060	7110	5440
21	5330	3780	7420	6400	6500	6370	8360	5580	26100	9220	6810	5090
22	5070	5170	7320	5600	6600	6590	8420	5280	25400	8930	6690	5180
23	4960	4400	6790	6600	6500	6750	9440	6320	24900	9040	6460	5100
24	4850	4380	6700	7900	6400	6870	9300	8880	24400	9710	5760	4790
25	4850	4380	6550	8300	6300	6560	8740	13000	24400	9190	5530	4510
26	4780	4590	6430	8000	6200	6750	8970	17900	21400	9160	5360	4770
27	4530	4730	6680	6400	6000	6760	9200	24500	17300	8970	5440	5740
28	5050	5230	6720	6000	6200	6740	9390	27400	20300	8750	5560	4810
29	4590	4890	6900	6400	6600	7190	8830	22600	24000	8540	5500	4410
30	4660	4830	7000	6700	---	7050	8980	19100	22700	8430	5490	4490
31	4700	---	6900	6600	---	6650	---	17800	---	8690	5470	---
TOTAL	151410	145760	183910	205860	179100	200730	238800	326640	720700	374320	219630	149580
MEAN	4884	4859	5933	6641	6176	6475	7960	10540	24020	12070	7085	4986
MAX	5800	5810	9920	8300	7600	7300	9440	27400	28000	22200	9420	5830
MIN	4380	3780	3730	3300	5000	3500	6850	5280	17300	8430	5360	4150
AC-FT	300300	289100	364800	408300	355200	398100	473700	647900	1430000	742500	435600	296700

CAL YR 1979 TOTAL 3070410 MEAN 8412 MAX 19800 MIN 3730 AC-FT 6090000
WTR YR 1980 TOTAL 3096440 MEAN 8460 MAX 28000 MIN 3300 AC-FT 6142000

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: October 1974 to current year.

REMARKS.--No specific conductance extremes determined, record missing for more than 20% of days.

INSTRUMENTATION.--Temperature recorder since July 23, 1976.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (Water years 1975-79): Maximum daily, 712 micromhos Apr. 8, 1979; minimum daily, 112 micromhos Mar. 4, 1975.
WATER TEMPERATURES: Maximum, 27.0°C July 23, 1977; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 23.5°C July 23, 28, 31; minimum, 0.0°C on many days during November to March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
OCT											
31...	1400	4710	1	470	8.5	7.0	7.0	2.7	12.5	112	K2
NOV											
27...	1300	4620	83	491	8.6	-7.0	.0	2.5	14.8	108	K2
DEC											
18...	1230	4640	1	451	8.2	9.0	.5	5.0	13.0	99	K4
JAN											
17...	1100	8100	2	442	8.1	6.5	.0	3.2	12.4	93	K3
FEB											
15...	1530	5000	1	521	8.4	-8.0	.0	1.4	13.0	95	< 1
MAR											
11...	1130	7100	2	490	8.6	11.0	.0	20	12.7	96	< 1
APR											
15...	1000	7630	1	604	8.6	16.0	10.5	19	10.9	106	K6
MAY											
21...	1400	5770	0	494	8.8	26.0	19.0	12	9.8	115	K18
28...	1530	27200	1	434	8.0	21.0	12.0	720	9.0	90	--
JUN											
27...	1330	17100	1	475	8.4	18.0	16.5	670	8.3	92	K790
JUL											
22...	0930	8920	0	429	8.7	28.0	20.0	15	9.4	99	K4
AUG											
28...	1530	5610	1	467	8.6	22.0	17.5	8.3	9.7	110	K7
SEP											
23...	1230	4640	1	465	8.7	17.0	12.0	2.7	10.6	107	K2

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT											
31...	K1	180	35	46	17	23	.7	3.4	150	86	8.6
NOV											
27...	K11	200	37	49	18	24	.7	3.7	160	85	8.9
DEC											
18...	20	180	31	46	16	22	.7	3.5	150	77	8.9
JAN											
17...	38	170	24	45	15	23	.8	3.6	150	72	9.1
FEB											
15...	K5	220	61	54	21	31	.9	3.5	160	110	9.8
MAR											
11...	270	210	56	51	19	27	.8	3.8	150	86	9.8
APR											
15...	K5	210	54	51	21	31	.9	3.6	160	120	9.3
MAY											
21...	23	200	61	49	19	25	.8	2.6	140	100	6.5
28...	--	170	46	40	16	25	.8	3.2	120	90	3.9
JUN											
27...	K1800	180	48	45	16	30	1.0	3.1	140	91	11
JUL											
22...	31	170	31	42	16	22	.7	3.2	140	73	7.6
AUG											
28...	K16	180	42	45	17	22	.7	2.9	150	81	7.6
SEP											
23...	K5	180	44	44	18	20	.6	2.6	150	82	8.4

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
OCT										
31...	.7	12	292	287	.40	3710	.04	.01	.08	.03
NOV										
27...	.7	14	309	300	.42	3850	.08	.10	.02	.04
DEC										
18...	.7	15	278	280	.38	3480	.28	.26	.05	.02
JAN										
17...	.8	17	282	277	.38	6170	.26	.26	.02	.00
FEB										
15...	.7	16	327	344	.44	4410	.26	.27	.15	.09
MAR										
11...	.8	15	297	304	.40	5690	.27	.27	.04	.04
APR										
15...	.8	14	335	347	.46	6900	.31	.03	.06	.08
MAY										
21...	.5	9.8	299	297	.41	4660	.02	.02	.00	.01
28...	.4	12	271	264	.37	19900	.24	.26	.16	.15
JUN										
27...	.8	16	292	300	.40	13500	.61	--	--	.01
JUL										
22...	.9	8.6	264	257	.36	6360	.00	.00	.00	.01
AUG										
28...	.6	9.8	280	270	.38	4240	.28	.00	.02	.05
SEP										
23...	.7	9.1	273	269	.37	3420	.00	.00	.07	.01

MISSOURI RIVER MAIN STEM

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)
OCT 31...	.58	.23	.66	.26	.04	.01	2.9	--	--
NOV 27...	.57	.47	.59	.51	.05	.02	--	5.2	.1
DEC 18...	.47	.24	.52	.26	--	.04	4.5	--	--
JAN 17...	.91	.78	.93	.78	.05	.04	5.0	--	--
FEB 15...	.33	.39	.48	.48	.02	.02	--	7.8	.3
MAR 11...	.47	.37	.51	.41	.13	.02	3.1	--	--
APR 15...	.67	.45	.73	.53	.06	.01	3.8	--	--
MAY 21...	3.0	1.6	3.0	1.6	.06	.01	--	4.0	.5
28...	2.4	.55	2.6	.70	1.30	.03	--	5.4	3.4
JUN 27...	--	--	2.3	--	.77	.05	12	--	--
JUL 22...	.82	.58	.82	.59	.06	.02	7.5	--	--
AUG 28...	.70	.29	.72	.34	.05	.01	--	3.6	--
SEP 23...	.35	.27	.42	.28	.05	.03	9.0	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
NOV 27...	1300	19	3	200	70	0	< 1	10	0	0
DEC 18...	1230	--	--	--	--	--	--	--	--	--
FEB 15...	1530	14	17	300	60	0	< 1	0	0	0
MAR 11...	1130	--	--	--	--	--	--	--	--	--
MAY 21...	1400	10	10	0	70	0	< 1	0	0	0
28...	1530	13	5	500	50	1	< 1	20	0	12
JUN 27...	1330	--	--	--	--	--	--	--	--	--
AUG 28...	1530	13	13	200	70	1	< 1	0	0	0
SEP 23...	1230	--	--	--	--	--	--	--	--	--

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
NOV										
27...	< 3	1	0	150	< 10	4	0	0	3	.0
DEC										
18...	--	--	--	--	--	--	--	--	--	--
FEB										
15...	< 3	4	0	160	< 10	3	0	20	4	.0
MAR										
11...	--	--	--	--	--	--	--	--	--	--
MAY										
21...	< 3	8	8	580	< 10	2	0	50	10	.1
28...	2	50	8	29000	80	35	2	730	2	.1
JUN										
27...	--	--	--	--	--	--	--	--	--	--
AUG										
28...	< 3	14	8	430	< 10	0	0	20	2	.2
SEP										
23...	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV									
27...	.0	4	2	0	0	0	0	20	< 3
DEC									
18...	--	--	--	--	--	0	--	--	--
FEB									
15...	.0	0	0	0	0	0	0	40	20
MAR									
11...	--	--	--	--	--	0	--	--	--
MAY									
21...	.0	3	4	1	1	0	0	80	< 3
28...	.0	35	8	2	1	0	0	270	< 3
JUN									
27...	--	--	--	--	--	0	--	--	--
AUG									
28...	.1	3	3	1	1	0	0	20	< 3
SEP									
23...	--	--	--	--	--	0	--	--	--

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)
NOV												
27...	1300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	PARA-THION, TOTAL (UG/L) (39540)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	SILVEX, TOTAL (UG/L) (39760)
NOV												
27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980 ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	471	443	491	469	511	476	455	---	449	466
2	---	---	473	---	477	479	529	467	441	416	459	467
3	---	---	482	---	468	500	542	460	452	410	451	469
4	---	---	481	---	470	495	544	452	442	442	455	464
5	---	---	484	409	470	491	543	469	428	430	452	470
6	---	---	491	473	468	526	541	459	440	451	447	462
7	---	---	498	491	471	539	542	481	434	444	448	---
8	---	---	490	487	457	510	547	480	433	440	442	470
9	---	---	487	540	468	---	560	469	432	431	441	470
10	---	---	462	---	475	504	564	484	434	430	475	468
11	---	---	481	---	459	501	578	465	435	426	460	459
12	---	---	343	---	478	497	570	460	430	432	---	458
13	---	---	470	---	489	493	561	481	431	420	470	468
14	---	---	483	460	471	498	571	480	430	424	461	468
15	---	---	459	458	517	504	568	480	434	427	459	461
16	---	---	473	450	---	509	572	500	440	439	453	460
17	---	---	490	---	---	519	576	494	415	438	464	469
18	---	---	474	477	---	525	570	511	411	430	463	468
19	---	---	472	---	---	530	560	500	401	430	462	465
20	---	---	465	---	---	527	550	508	403	440	460	470
21	---	---	---	---	---	529	538	525	---	447	461	471
22	---	---	451	---	---	528	531	530	412	450	462	469
23	---	---	453	461	---	526	519	521	409	---	460	469
24	---	---	458	---	---	528	510	512	408	449	468	467
25	---	---	454	---	---	531	494	490	403	450	469	469
26	---	---	367	---	---	531	493	716	410	443	470	470
27	---	---	452	---	---	532	489	518	496	450	469	496
28	---	---	456	---	520	539	485	538	452	451	471	460
29	---	---	459	505	469	546	490	448	429	460	471	460
30	---	---	459	499	---	541	476	451	430	449	470	[illegible]
31	---	---	449	500	---	536	---	483	---	448	461	---
MEAN			463	475	478	516	537	494	430	438	460	467

WTR YR 1980 MEAN 476 MAX 716 MIN 343

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	14.5	13.0	13.5	6.5	1.0	6.0	.0	.0	.0	.0	.0	.0
2	13.5	12.0	12.5	6.0	4.5	5.5	1.0	.0	.5	.5	.0	.0
3	13.0	11.0	12.0	5.5	5.0	5.5	2.0	1.0	1.5	.5	.0	.0
4	13.5	11.0	12.5	5.5	4.5	5.0	3.0	1.5	2.5	.0	.0	.0
5	14.0	12.0	13.0	4.5	4.0	4.0	2.5	2.0	2.0	.0	.0	.0
6	14.0	12.0	13.0	4.5	3.0	3.5	3.0	2.0	2.5	.0	.0	.0
7	14.5	12.5	13.5	4.0	2.5	3.5	2.5	2.0	2.5	.0	.0	.0
8	13.0	11.5	12.5	3.5	3.0	3.0	3.5	1.5	2.0	.0	.0	.0
9	11.5	10.0	11.0	3.5	3.0	3.0	5.0	3.5	4.0	.0	.0	.0
10	13.5	11.0	12.0	4.0	3.5	3.5	4.5	1.5	3.5	.0	.0	.0
11	14.5	12.5	13.5	4.5	3.5	4.0	1.0	.0	.0	.0	.0	.0
12	14.5	13.0	13.5	4.0	3.0	3.5	.0	.0	.0	.0	.0	.0
13	13.5	11.5	12.5	4.0	3.0	3.5	.0	.0	.0	.0	.0	.0
14	13.5	11.5	12.5	4.0	2.5	3.0	1.0	.0	.0	.0	.0	.0
15	13.5	12.5	13.0	4.5	3.0	3.5	.0	.0	.0	.0	.0	.0
16	13.0	11.5	12.5	4.0	3.0	3.5	.0	.0	.0	.0	.0	.0
17	13.0	11.5	12.0	4.5	4.0	4.5	.0	.0	.0	.0	.0	.0
18	11.0	10.0	10.5	5.0	4.0	4.5	.0	.0	.0	.0	.0	.0
19	10.5	9.5	10.0	4.5	3.5	4.0	1.0	.0	.5	.0	.0	.0
20	9.5	8.5	9.0	3.5	2.5	3.0	1.5	.5	1.0	.0	.0	.0
21	8.0	7.5	7.5	2.5	1.0	1.5	.5	.0	.5	.0	.0	.0
22	8.0	6.5	7.0	2.0	.5	1.0	.0	.0	.0	.0	.0	.0
23	9.5	7.5	8.5	2.0	.5	1.5	.5	.0	.0	.0	.0	.0
24	9.5	8.0	8.5	2.0	1.5	2.0	.5	.0	.0	.0	.0	.0
25	9.0	8.0	8.5	2.0	1.0	1.5	1.0	.0	.5	.0	.0	.0
26	9.5	8.5	9.0	1.0	.5	1.0	1.0	.0	.5	.0	.0	.0
27	9.0	7.5	8.5	.5	.0	.0	.5	.0	.5	.0	.0	.0
28	8.5	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	9.0	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	8.0	7.0	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	7.0	6.0	6.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	14.5	6.0	10.5	6.5	.0	3.0	5.0	.0	1.0	.5	.0	.0

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN FEBRUARY	MEAN	MAX	MIN MARCH	MEAN	MAX	MIN APRIL	MEAN	MAX	MIN MAY	MEAN
1	.0	.0	.0	.0	.0	.0	5.0	4.0	4.5	16.5	14.0	15.5
2	.0	.0	.0	.0	.0	.0	5.5	4.5	5.0	17.5	15.0	16.0
3	.0	.0	.0	.0	.0	.0	6.0	4.0	5.0	15.5	14.0	15.0
4	.0	.0	.0	.0	.0	.0	8.0	5.0	6.5	15.5	12.5	14.0
5	.0	.0	.0	.0	.0	.0	8.5	6.0	7.0	17.0	14.0	15.5
6	.0	.0	.0	.0	.0	.0	9.5	7.0	8.0	16.0	13.5	15.0
7	.0	.0	.0	.0	.0	.0	8.0	7.0	7.5	14.5	12.5	13.5
8	.0	.0	.0	.0	.0	.0	9.0	6.0	7.5	14.5	12.5	13.0
9	.0	.0	.0	.0	.0	.0	9.0	7.0	8.0	15.5	14.0	14.5
10	.0	.0	.0	.0	.0	.0	8.0	7.0	7.5	14.5	13.0	13.5
11	.0	.0	.0	.0	.0	.0	9.0	6.5	7.5	15.0	12.0	13.5
12	.0	.0	.0	.0	.0	.0	10.5	7.5	9.0	15.0	12.5	14.0
13	.0	.0	.0	.0	.0	.0	11.0	8.0	9.5	15.5	12.5	14.0
14	.0	.0	.0	.0	.0	.0	12.0	9.0	10.5	16.0	13.0	14.5
15	.0	.0	.0	.0	.0	.0	11.5	10.0	11.0	16.5	13.0	14.5
16	.0	.0	.0	1.0	.0	.0	12.0	9.0	10.5	17.0	14.0	15.5
17	.0	.0	.0	2.5	1.0	2.0	13.5	10.0	11.5	18.0	15.0	16.5
18	.0	.0	.0	4.5	2.0	3.0	14.0	11.5	12.5	19.5	16.0	18.0
19	.0	.0	.0	4.0	3.0	3.5	14.0	12.0	13.0	18.0	17.0	17.5
20	.0	.0	.0	4.5	2.0	3.5	15.0	12.0	13.5	19.0	16.0	17.5
21	.0	.0	.0	4.5	3.0	4.0	15.5	13.0	14.0	21.0	17.5	19.0
22	.0	.0	.0	5.5	2.5	4.0	13.0	11.0	12.5	22.0	19.0	20.5
23	.0	.0	.0	6.0	4.0	5.0	12.5	10.0	11.5	20.0	17.0	18.5
24	.0	.0	.0	5.0	3.5	4.5	14.5	12.0	13.5	17.5	15.5	16.5
25	.0	.0	.0	4.5	3.0	4.0	15.5	13.0	14.0	16.5	14.5	15.5
26	.0	.0	.0	5.5	2.5	4.0	14.5	13.0	13.5	14.5	12.5	13.0
27	.0	.0	.0	6.5	4.0	5.0	15.5	12.5	14.0	13.0	11.5	12.0
28	.0	.0	.0	7.0	4.0	5.5	16.5	14.0	15.0	13.0	11.5	12.5
29	.0	.0	.0	6.5	4.5	5.5	17.0	14.5	16.0	14.0	12.0	13.0
30	---	---	---	5.5	4.0	5.0	16.5	15.0	16.0	14.5	13.5	14.0
31	---	---	---	4.5	3.5	4.0	---	---	---	15.0	13.5	14.5
MONTH	.0	.0	.0	7.0	.0	2.0	17.0	4.0	10.5	22.0	11.5	15.0

DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN	MAX	MIN AUGUST	MEAN	MAX	MIN SEPTEMBER	MEAN
1	15.5	14.0	15.0	19.5	18.0	18.5	22.5	21.5	22.0	18.0	15.5	16.5
2	15.5	14.0	14.5	20.5	19.0	19.5	21.5	20.0	21.0	18.5	16.5	17.5
3	14.5	13.5	14.0	20.0	19.0	19.5	21.0	18.0	19.5	17.0	15.5	16.5
4	15.0	14.0	14.5	20.0	18.5	19.5	19.0	17.0	18.0	16.5	14.0	15.5
5	14.5	13.5	14.0	21.0	20.0	20.5	20.0	18.0	19.0	18.0	15.0	16.5
6	14.5	13.0	13.5	21.0	19.5	20.5	20.0	18.0	19.0	19.0	15.5	17.5
7	14.0	13.0	13.5	21.0	19.0	20.0	20.0	18.5	19.0	18.5	17.0	18.0
8	14.5	13.0	13.5	22.0	20.5	21.0	20.0	18.0	19.0	18.0	15.5	17.0
9	16.0	13.5	14.5	22.0	20.5	21.5	20.5	19.0	19.5	18.0	15.5	17.0
10	17.0	15.5	16.0	22.0	20.5	21.0	21.0	18.5	19.5	19.0	16.5	17.5
11	17.5	16.5	17.0	21.0	20.0	20.5	21.5	19.0	20.0	19.0	17.5	18.5
12	---	17.0	---	21.5	20.0	20.5	20.0	19.0	19.5	18.5	16.5	17.5
13	---	---	---	20.5	19.5	20.0	20.5	18.5	19.5	17.0	16.0	16.5
14	---	---	---	19.5	18.5	19.0	21.0	18.0	19.5	18.0	15.0	16.5
15	---	---	---	19.5	18.0	18.5	21.5	19.5	20.5	17.0	14.5	15.5
16	---	---	---	20.0	17.5	18.5	21.5	19.5	20.5	15.0	12.5	14.0
17	---	---	---	20.0	18.5	19.5	---	---	---	15.0	14.0	14.0
18	---	---	---	20.0	18.5	19.5	---	---	---	14.0	13.5	14.0
19	---	---	---	20.5	18.5	19.5	---	---	---	15.0	13.5	14.0
20	---	---	---	20.5	17.5	19.0	20.0	17.5	18.5	15.0	13.0	14.0
21	---	---	---	22.0	19.0	20.5	19.5	17.5	18.5	14.5	13.0	13.5
22	---	---	---	23.0	20.0	21.5	18.5	17.0	17.5	13.5	12.0	12.5
23	---	---	---	23.5	21.0	22.0	18.5	16.5	17.0	13.5	11.5	12.5
24	---	---	---	22.0	20.5	21.0	19.5	16.5	18.0	12.5	11.0	12.0
25	17.5	---	---	22.0	19.5	21.0	18.5	15.5	17.0	12.5	10.0	11.5
26	18.5	17.0	17.5	23.0	21.0	22.0	19.0	15.5	17.0	13.5	11.5	12.5
27	18.0	16.5	17.0	23.0	21.0	22.0	18.5	16.5	17.5	14.5	12.0	13.5
28	17.0	16.0	16.5	23.5	21.0	22.0	18.0	15.5	16.5	13.5	12.5	13.0
29	18.0	16.0	17.0	23.0	21.0	22.0	17.5	15.5	16.5	14.0	12.0	13.0
30	18.5	17.0	18.0	23.0	20.5	21.5	18.0	15.0	16.5	14.0	13.0	13.5
31	---	---	---	23.5	20.5	22.0	17.0	15.5	16.5	---	---	---
MONTH	18.5	13.0	15.5	23.5	17.5	20.5	22.5	15.0	18.5	19.0	10.0	15.0
YEAR	23.5	.0	9.0									

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 31...	1400	7.0	4710	8	102	--	--	--	--	--	82
NOV 27...	1300	.0	4620	5	62	--	--	--	--	--	70
DEC 18...	1230	.5	4640	18	226	--	--	--	--	--	--
JAN 17...	1100	.0	8100	12	262	--	--	--	--	--	--
FEB 15...	1530	.0	5000	12	162	--	--	--	--	--	--
MAR 11...	1130	.0	7100	102	1960	--	--	--	--	--	--
APR 15...	1000	10.5	7630	58	1190	--	--	--	--	--	81
MAY 21...	1400	19.0	5770	44	685	--	--	--	--	--	89
28...	1530	12.0	27200	1680	123000	54	78	93	96	100	90
JUN 27...	1330	16.5	17100	1520	70200	--	--	--	--	--	--
JUL 22...	0930	20.0	8920	53	1280	--	--	--	--	--	83
AUG 28...	1530	17.5	5610	30	454	--	--	--	--	--	94
SEP 23...	1230	12.0	4640	15	188	--	--	--	--	--	87

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO JUNE 1980

DATE	NOV 27,79		MAR 11,80		MAY 21,80		JUN 27,80	
TIME	1300		1130		1400		1330	
TOTAL CELLS/ML	1800		1700		8900		2700	
DIVERSITY: DIVISION	0.5		0.3		1.4		0.8	
.CLASS	0.5		0.3		1.4		0.8	
..ORDER	1.1		1.1		1.9		1.4	
...FAMILY	3.0		2.4		2.1		2.1	
....GENUS	3.3		2.7		2.8		3.0	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	72	3
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	26	2	150	2	72	3
....CHLORELLA	130	8	--	-	--	-	--	-
....CHODATELLA	15	1	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	72	3
....SELENASTRUM	--	-	--	-	380	4	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	--	-	290	11
....SCENEDESMUS	--	-	--	-	300	3	140	5
....TETRASTRUM	--	-	--	-	300	3	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	26	2	380	4	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	240	13	390#	23	4300#	48	860#	32
....MELOSIRA	15	1	91	5	600	7	500#	18
....STEPHANODISCUS	--	-	--	-	300	3	140	5
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	30	2	--	-	--	-	--	-
....COCCONEIS	30	2	26	2	--	-	--	-
....RHOICOSPHENIA	59	3	--	-	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	15	1	13	1	--	-	--	-
....EPITHEMIA	--	-	--	-	--	-	72	3
...DIATOMACEAE								
....DIATOMA	180	10	65	4	--	-	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	15	1	52	3	--	-	--	-
....FRAGILARIA	180	10	--	-	--	-	--	-
....SYNEDRA	30	2	78	5	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	74	4	52	3	--	-	72	3
...NAVICULACEAE								
....NAVICULA	310#	18	660#	40	150	2	72	3
...NITZSCHIACEAE								
....NITZSCHIA	410#	24	170	10	600	7	360	13
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	230	3	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	30	2	13	1	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	900	10	--	-
....COCCOCHLORIS	--	-	--	-	150	2	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	150	2	--	-

06109500 MISSOURI RIVER AT VIRGELLE, MT--Continued

PHYTOPLANKTON ANALYSES, JULY 1980 TO SEPTEMBER 1980

DATE TIME	JUL 22,80 0930	AUG 28,80 1530	SEP 23,80 1230
TOTAL CELLS/ML	9000	8700	2300
DIVERSITY: DIVISION	0.8	1.6	1.5
.CLASS	0.8	1.6	1.5
..ORDER	1.6	2.0	2.3
...FAMILY	2.2	2.5	2.8
....GENUS	2.9	2.9	3.3

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	100	1	150	2	13	1
...MICRACTINIACEAE						
....MICRACTINIUM	130	1	200	2	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	67	1	250	3	26	1
....CHODATELLA	--	-	--	-	13	1
....DICTYOSPHAERIUM	540	6	--	-	--	-
....OOCYSTIS	--	-	400	5	--	-
....SELENASTRUM	--	-	50	1	13	1
...SCENEDESMACEAE						
....SCENEDESMUS	200	2	200	2	150	7
....TETRASTRUM	130	1	200	2	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	200	2	150	2	13	1
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	200	2	2500#	28	500#	22
....MELOSIRA	2000#	23	700	8	520#	22
..PENNALES						
...CYMBELLACEAE						
....EPITHEMIA	--	-	--	-	77	3
...FRAGILARIACEAE						
....ASTERIONELLA	2300#	25	--	-	--	-
....FRAGILARIA	2100#	24	450	5	--	-
....SYNEDRA	34	0	--	-	52	2
...GOMPHONEMATACEAE						
....GOMPHONEMA	--	-	50	1	--	-
...NAVICULACEAE						
....NAVICULA	34	0	100	1	52	2
...NITZSCHIACEAE						
....NITZSCHIA	600	7	350	4	190	8
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	150	2	130	6
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	13	1
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	270	3	2800#	32	170	7
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	--	-	150	7
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	230	10

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06115200 MISSOURI RIVER NEAR LANDUSKY, MT

LOCATION.--Lat 47°37'51", long 108°41'13", in NW¼NE¼ sec.31, T.22 N., R.24 E., Fergus County, Hydrologic Unit 10040104, Fort Peck Game Range, on right bank 380 ft (116 m) upstream from bridge on U.S. Highway 191, 0.9 mi (1.4 km) upstream from Armells Creek, 20 mi (32 km) south of Landusky, and at mile 1,921.61 (3,091.87 km).

DRAINAGE AREA.--40,987 mi^2 (106,156 km^2). Area at site used prior to Dec. 13, 1968, 40,763 mi^2 (105,576 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1934 to current year. Prior to October 1968, published as "at powerplant ferry, near Zortman."

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,239.96 ft (682.740 m) National Geodetic Vertical Datum of 1929 (State Highway bench mark). Prior to Feb. 7, 1935, nonrecording gage, and Feb. 7, 1935, to Dec. 12, 1968, water-stage recorder, at site 16.5 mi (26.5 km) upstream at datum 33.06 ft (10.077 m) higher.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Flow regulated by 24 smaller irrigation reservoirs and powerplants, Clark Canyon Reservoir (station number 06015300), Canyon Ferry Reservoir (station number 06058500), and Lake Elwell (station number 06101300). Diversions for irrigation of about 870,400 acres (3,520 km^2) above station.

AVERAGE DISCHARGE.--46 years, 9,384 ft^3/s (265.8 m^3/s), 6,799,000 acre-ft/yr (8.38 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 137,000 ft^3/s (3,880 m^3/s) June 6, 1953, gage height, 22.20 ft (6.767 m), from graph based on gage readings, site and datum then in use; maximum gage height, 30.16 ft (9.193 m) Mar. 19, 1947 (ice jam), from floodmark, site and datum then in use; maximum gage height, present site and datum, 34.17 ft (10.418 m) Mar. 26, 1978 (ice jam), from floodmark; minimum discharge, 1,120 ft^3/s (31.7 m^3/s) July 8, 1936, gage height, 1.92 ft (0.585 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,900 ft^3/s (847 m^3/s) June 18, gage height, 21.81 ft (6.648 m); maximum gage height observed, 21.95 ft (6.690 m) Dec. 20 (backwater from ice); minimum daily discharge, 3,600 ft^3/s (102 m^3/s) Jan. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5060	4840	5200	7300	7000	6500	13400	10100	21000	24500	8820	5960
2	5210	4970	5200	7200	6900	6900	8900	9820	22600	24400	9270	5860
3	5880	5190	5200	7100	6800	7600	8660	9950	23600	24800	9520	5720
4	5160	5180	5400	7000	6900	7400	8300	10200	22600	24200	9670	5500
5	5080	5030	5400	6900	7200	6700	8420	10100	23200	18600	9820	5600
6	5180	5060	5300	7300	7900	6600	8070	9770	25800	17100	9950	5290
7	5250	5180	5400	7400	6200	6300	8040	9720	26000	15800	9620	5640
8	5060	5250	5200	7000	7000	3800	8350	10200	26000	15400	9540	4950
9	5120	5080	5000	6400	7100	4800	8390	12800	27100	15000	9270	4900
10	5560	5250	5000	5400	7200	6000	8580	13100	27300	14600	8660	5440
11	5960	5350	5000	3700	6700	7000	8780	12200	25600	14300	7300	5250
12	4990	4950	5000	3600	6300	7600	8660	9970	25200	15300	7410	5370
13	4840	4910	5200	5800	5800	7400	8630	8560	26600	13400	6870	4630
14	4970	4930	5000	6300	5900	7400	8560	8870	28100	13400	7080	5060
15	5060	5210	4000	7200	6000	7100	8560	8580	28400	13300	7080	5250
16	4860	5140	3800	8000	5900	6800	8390	8090	28400	11400	8440	5640
17	5500	5410	4000	8400	5300	6600	8250	6890	28200	11100	7230	5940
18	5440	5330	4600	8500	5800	6800	8320	6800	29700	12100	6870	4840
19	5210	4820	5600	8400	5600	6800	8900	6450	29100	12000	6650	5520
20	4700	4970	8600	8200	5700	7000	9170	6220	29000	10800	6930	5560
21	4690	5080	10500	7800	6100	7100	9270	6510	29000	9540	7500	5660
22	5600	6300	9400	7400	6400	7200	9370	6450	28100	9540	7500	5600
23	5440	6340	7800	6700	6800	7300	9140	6200	27600	9290	7230	5390
24	5780	4990	7600	6200	6900	7400	10500	6590	26900	9370	7230	5370
25	4880	4550	7000	6900	6800	7500	10400	10600	26200	9720	6510	5250
26	5250	4500	7000	8200	6700	7800	9870	15900	26400	9620	6140	4970
27	4740	3900	6800	8600	6600	8000	10200	20000	23200	9490	6000	4650
28	4530	4400	6800	8300	6500	8200	10200	26600	19100	9270	5760	5370
29	5210	4300	7000	6800	6300	9000	10200	28400	22600	9140	5960	5720
30	5180	5400	7000	6300	---	10600	10200	24800	26300	8780	5960	4650
31	4840	---	7200	6700	---	12000	---	22200	---	8660	5960	---
TOTAL	160230	151810	187200	217000	188300	225200	274680	362640	778900	423920	237750	160550
MEAN	5169	5060	6039	7000	6493	7265	9156	11700	25960	13670	7669	5352
MAX	5960	6340	10500	8600	7900	12000	13400	28400	29700	24800	9950	5960
MIN	4530	3900	3800	3600	5300	3800	8040	6200	19100	8660	5760	4630
AC-FT	317800	301100	371300	430400	373500	446700	544800	719300	1545000	840800	471600	318500

CAL YR 1979 TOTAL 3689840 MEAN 10110 MAX 30000 MIN 3800 AC-FT 7319000
WTR YR 1980 TOTAL 3368180 MEAN 9203 MAX 29700 MIN 3600 AC-FT 6681000

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1979 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to current year.

REMARKS.--Once-daily water temperatures are available in the District office. Prior to July 1972, sampling and record computations under supervision of Corps of Engineers, U.S. Army. Sediment loads estimated Nov. 28 to Dec. 6, Dec. 11-24. Flow affected by ice during most of winter months.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1.240 micromhos June 20, 1979; minimum daily, 410 micromhos July 3, 1980.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 27,400 mg/L June 22, 1976; minimum daily mean, 5 mg/L on several days during December 1971 and January 1972.
SEDIMENT LOADS: Maximum daily, 1,680,000 tons (1,520,000 megagrams) June 22, 1976; minimum daily, 82 tons (74 megagrams) Dec. 27, 1971.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 821 micromhos May 26; minimum daily, 410 micromhos July 3.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 13,000 mg/L May 26; minimum daily mean, 10 mg/L Jan. 1, 2.
SEDIMENT LOADS: Maximum daily, 558,000 tons (506,000 megagrams) May 26; minimum daily, 194 tons (176 megagrams) Jan. 2.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	COLOR (PLAT-INUM COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
OCT											
24...	1230	6170	0	535	8.6	17.0	8.0	--	6.9	11.3	103
NOV											
28...	1300	4400	1	555	8.5	-4.0	1.0	--	18	13.7	102
DEC											
19...	1300	5600	1	580	8.4	4.0	.5	--	2.9	12.9	98
JAN											
23...	1430	8570	2	475	8.2	8.0	.5	5	6.8	14.0	106
FEB											
14...	1530	7340	73	525	8.1	-15.0	.0	--	3.0	11.7	85
MAR											
20...	1300	7000	0	580	8.1	13.0	1.5	--	40	10.4	80
APR											
23...	1515	8780	0	550	8.5	25.0	14.0	5	35	9.2	97
MAY											
23...	1100	6200	0	500	8.6	25.0	20.0	--	23	7.4	89
28...	1500	26700	1	525	8.1	21.0	15.0	--	850	6.4	69
JUN											
19...	1130	29100	1	418	8.4	26.0	18.5	--	120	7.6	88
JUL											
17...	1230	10600	1	410	8.7	25.0	20.0	20	23	7.9	94
AUG											
27...	1200	6150	1	485	8.7	17.5	17.5	--	12	8.5	96
SEP											
17...	1230	6190	2	470	8.6	18.0	14.5	--	7.5	8.7	93

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT 24...	K2	< 1	210	61	50	21	28	.8	--	150	.7
NOV 28...	< 1	< 1	230	70	56	22	29	.8	3.2	160	--
DEC 19...	K2	K6	230	61	58	21	27	.8	3.6	170	--
JAN 23...	K2	K4	200	57	51	17	22	.7	3.6	140	--
FEB 14...	K3	K3	210	48	52	19	27	.8	3.4	160	--
MAR 20...	K2	840	220	78	51	22	41	1.2	3.5	140	--
APR 23...	K13	K2	220	56	52	21	31	.9	3.5	160	--
MAY 23...	K7	130	200	74	47	21	29	.9	2.7	130	--
28...	--	--	210	84	56	18	28	.8	3.6	130	--
JUN 19...	93	K64	170	28	41	16	21	.7	3.1	140	--
JUL 17...	K3	22	170	42	44	15	23	.8	2.9	130	--
AUG 27...	< 1	K3	200	56	47	19	25	.8	2.8	150	--
SEP 17...	K7	K6	200	57	46	20	24	.7	3.0	150	--

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT 24...	120	8.8	.8	11	316	--	--	--	.00	.01	.01
NOV 28...	120	9.3	.7	11	390	348	.53	4630	.02	.08	.02
DEC 19...	110	10	.7	15	372	349	.51	5630	.28	.31	.02
JAN 23...	85	6.7	.8	16	308	288	.42	7130	.34	.34	.05
FEB 14...	98	9.6	.8	16	327	324	.44	6480	.34	.34	.11
MAR 20...	140	9.1	.7	12	385	365	.52	7280	.31	.33	.04
APR 23...	120	7.8	.8	12	366	345	.50	8680	.04	.06	.02
MAY 23...	120	7.1	.5	7.9	304	313	.41	5090	.99	.01	.10
28...	130	7.4	.5	9.6	378	332	.51	27300	.37	.15	.52
JUN 19...	64	6.5	.6	14	264	251	.36	20700	.19	.19	.09
JUL 17...	76	7.2	.8	9.1	268	256	.36	7670	.00	.00	.00
AUG 27...	110	7.9	.7	9.4	311	306	.42	5160	.00	.00	.01
SEP 17...	91	7.5	.7	5.8	267	282	.36	4460	.00	.00	.00

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHOPH OSPHATE TOTAL (MG/L AS P) (70507)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)
OCT											
24...	.00	.74	.78	.75	.78	.03	.00	--	--	4.2	.1
NOV											
28...	.01	1.1	.87	1.1	.88	.01	.01	--	8.2	--	--
DEC											
19...	.07	.92	.49	.94	.56	.04	.00	--	6.6	--	--
JAN											
23...	.06	.41	.35	.46	.41	.07	.05	.04	6.4	--	--
FEB											
14...	.11	1.1	.55	1.2	.66	.03	.03	--	--	2.9	.4
MAR											
20...	.02	.73	.46	.77	.48	.14	.02	--	3.1	--	--
APR											
23...	.12	1.2	.45	1.2	.57	.14	.02	.00	5.6	--	--
MAY											
23...	.03	1.0	.41	1.1	.44	.08	.00	--	--	--	1.6
28...	.50	2.8	.07	3.3	.57	1.5	.02	--	--	5.8	2.8
JUN											
19...	.04	1.0	.43	1.1	.47	.29	.01	--	14	--	--
JUL											
17...	.00	1.0	.54	1.0	.54	.08	.01	.01	6.5	--	--
AUG											
27...	.10	.66	.44	.67	.54	.04	.01	--	--	6.6	.7
SEP											
17...	.00	.77	.36	.77	.36	.06	.02	--	4.1	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
OCT										
24...	1230	15	13	200	60	0	< 1	0	0	2
FEB										
14...	1530	14	14	200	60	2	< 1	0	0	0
MAR										
20...	1300	--	--	--	--	--	--	--	--	--
MAY										
23...	1100	10	9	100	70	1	0	0	0	0
28...	1500	15	7	900	60	3	< 1	0	0	25
JUN										
19...	1130	--	--	--	--	--	--	--	--	--
AUG										
27...	1200	12	12	200	70	0	< 1	20	0	2
SEP										
17...	1230	--	--	--	--	--	--	--	--	--

DATE	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
OCT										
24...	< 3	8	3	1900	< 10	2	0	50	1	.1
FEB										
14...	< 3	5	2	350	< 10	2	0	10	2	.0
MAR										
20...	--	--	--	--	--	--	--	--	--	--
MAY										
23...	0	13	4	2400	< 10	17	1	80	1	.0
28...	< 3	170	9	63000	90	76	1	1300	7	.5
JUN										
19...	--	--	--	--	--	--	--	--	--	--
AUG										
27...	< 3	17	6	3700	< 10	13	0	110	< 1	.0
SEP										
17...	--	--	--	--	--	--	--	--	--	--

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT									
24...	.0	7	0	1	1	0	0	0	3
FEB									
14...	.0	1	1	0	0	0	0	70	10
MAR									
20...	--	--	--	--	--	0	--	--	--
MAY									
23...	.0	7	2	1	0	0	0	90	< 3
28...	.0	72	5	3	1	1	0	540	5
JUN									
19...	--	--	--	--	--	0	--	--	--
AUG									
27...	.0	17	2	1	1	1	0	50	< 3
SEP									
17...	--	--	--	--	--	0	--	--	--

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	506	536	576	521	448	527	661	493	460	440	452	471
2	508	515	652	521	489	450	601	490	457	428	459	482
3	510	532	551	517	486	590	635	490	448	410	461	490
4	507	497	542	509	490	589	642	464	459	414	469	480
5	502	529	530	621	529	580	644	479	450	420	460	481
6	505	530	530	611	506	648	661	479	442	423	461	485
7	508	548	560	620	533	640	660	481	446	430	455	480
8	510	532	575	619	521	648	660	482	446	455	460	481
9	510	531	555	510	516	637	641	482	448	437	458	481
10	510	548	561	511	511	636	638	510	439	437	459	481
11	510	534	582	515	497	661	632	482	439	426	469	481
12	510	542	583	512	509	641	662	472	441	429	480	480
13	510	551	551	576	481	636	658	480	482	429	480	479
14	512	560	560	570	511	644	640	491	450	430	495	489
15	526	553	---	560	517	640	631	522	440	422	485	480
16	522	549	---	561	515	618	625	525	447	431	490	474
17	520	550	---	611	513	601	620	525	446	427	489	478
18	520	551	---	506	484	600	612	526	452	431	510	471
19	522	550	---	502	502	611	604	512	431	423	490	482
20	519	529	---	502	514	615	601	512	412	421	490	489
21	482	550	---	490	519	601	582	520	424	430	480	488
22	534	541	503	486	501	602	576	520	414	442	490	483
23	521	530	529	491	514	580	565	521	450	441	490	490
24	524	530	512	506	586	584	649	520	441	440	480	490
25	526	529	502	499	521	571	540	819	428	440	490	480
26	519	552	517	503	510	571	513	821	416	440	486	483
27	539	554	512	501	511	566	506	602	479	440	495	498
28	530	557	---	---	516	569	501	600	480	436	492	480
29	510	569	520	---	592	580	508	531	467	440	499	475
30	627	572	520	---	---	579	490	454	430	440	491	486
31	491	---	519	---	---	581	---	460	---	448	486	---
MEAN	518	542	545	535	512	600	605	525	445	432	479	482

WTR YR 1980 MEAN 518 MAX 821 MIN 410

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT											
24...	1230	8.0	6170	121	2020	--	--	--	--	--	21
JAN											
23...	1430	.5	8570	101	2340	--	--	--	--	--	48
FEB											
14...	1530	.0	7340	32	634	--	--	--	--	--	59
APR											
23...	1515	14.0	8780	242	5740	--	--	--	--	--	54
MAY											
23...	1100	20.0	6200	151	2530	--	--	--	--	--	54
28...	1500	15.0	26700	3630	262000	38	59	88	96	100	81
JUN											
19...	1130	18.5	29100	700	55000	--	--	--	--	--	57
JUL											
17...	1230	20.0	10600	194	5550	--	--	--	--	--	52
AUG											
27...	1200	17.5	6150	95	1580	--	--	--	--	--	51
SEP											
17...	1230	14.5	6190	53	886	--	--	--	--	--	64

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)
OCT							
24...	1230	2	3	91	100	--	--
APR							
23...	1515	88	100	--	--	--	--
MAY							
23...	1100	23	58	97	100	--	--
JUN							
19...	1130	1	3	70	99	100	--
JUL							
17...	1230	43	76	94	100	--	--
AUG							
27...	1200	1	2	57	99	100	--
SEP							
17...	1230	3	4	36	97	99	100

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	158	2160	160	2090	---	2250	10	197	72	1360	66	1160
2	121	1700	126	1690	---	2250	10	194	91	1700	80	1490
3	99	1570	86	1210	---	2250	15	288	111	2040	91	1870
4	86	1200	63	881	---	2330	15	283	131	2440	82	1640
5	92	1260	56	761	---	2190	15	279	148	2880	69	1250
6	195	2730	78	1070	---	2000	30	591	156	3330	56	998
7	574	8140	110	1540	128	1870	60	1200	135	2260	43	731
8	396	5440	132	1870	106	1490	40	756	96	1810	34	349
9	128	1770	138	1890	102	1380	20	346	70	1340	42	544
10	127	1910	140	1980	150	2030	15	219	58	1130	63	1020
11	181	2910	142	2050	---	3380	25	250	53	959	88	1660
12	184	2480	143	1910	---	2700	35	340	43	731	135	2770
13	174	2270	144	1910	---	2810	50	783	37	579	268	5350
14	160	2150	141	1880	---	2700	58	987	32	510	263	5250
15	120	1640	134	1880	---	1080	63	1220	32	518	189	3620
16	114	1500	183	2540	---	1030	68	1470	33	526	138	2530
17	123	1830	233	3400	---	1620	74	1680	35	501	121	2160
18	135	1980	270	3890	---	2480	80	1840	38	595	113	2070
19	135	1900	308	4010	---	3780	85	1930	41	620	113	2070
20	120	1520	345	4630	---	8130	90	1990	46	708	127	2400
21	118	1490	382	5240	---	11300	98	2060	52	856	136	2610
22	140	2120	403	6860	---	8880	105	2100	60	1040	141	2740
23	130	1910	327	5600	---	5050	100	1810	68	1250	148	2920
24	110	1720	179	2410	---	3080	51	854	77	1430	156	3120
25	115	1520	94	1150	100	1890	20	373	79	1450	170	3440
26	136	1930	93	1130	70	1320	14	310	75	1360	195	4110
27	197	2520	120	1260	65	1190	17	395	68	1210	230	4970
28	305	3730	---	1780	40	734	24	538	63	1110	280	6200
29	234	3290	---	1740	30	567	34	624	60	1020	356	8650
30	152	2130	---	2330	20	378	44	748	---	---	502	14400
31	157	2050	---	---	15	292	56	1010	---	---	1420	46000
TOTAL	---	72470	---	72582	---	84431	---	27665	---	37263	---	140092
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	1540	55700	438	11900	1100	62400	530	35100	157	3740	60	966
2	910	21900	313	8300	995	60700	461	30400	150	3750	63	997
3	659	15400	283	7600	960	61200	505	33800	595	15300	71	1100
4	632	14200	356	9800	975	59500	480	31400	436	11400	61	906
5	487	11100	302	8240	1110	69500	620	31100	356	9440	42	635
6	470	10200	214	5650	1260	87800	475	21900	282	7580	42	600
7	484	10500	181	4750	1190	83500	338	14400	103	2680	51	777
8	392	8840	248	6830	1140	80000	341	14200	137	3530	53	708
9	302	6840	488	16900	1190	87100	454	18400	135	3380	53	701
10	335	7760	408	14400	550	40500	308	12100	112	2620	56	823
11	430	10200	423	13900	230	15900	247	9540	103	2030	61	865
12	365	8530	280	7540	550	37400	427	17600	102	2040	67	971
13	313	7290	187	4320	1930	139000	340	12300	113	2100	68	850
14	308	7120	183	4380	1270	96400	283	10200	130	2490	65	888
15	366	8460	188	4360	680	52100	273	9800	142	2710	62	879
16	260	5890	168	3670	920	70500	229	7050	164	3740	65	990
17	215	4790	138	2570	1010	76900	170	5090	194	3790	54	866
18	233	5230	107	1960	1100	88200	184	6010	225	4170	26	340
19	231	5550	121	2110	810	63600	357	11600	254	4560	138	2060
20	298	7380	177	2970	995	77900	206	6010	269	5030	114	1710
21	309	7730	245	4310	1160	90800	176	4530	294	5950	80	1220
22	712	18000	216	3760	1150	87300	106	2730	203	4110	49	741
23	435	10700	156	2610	1420	106000	132	3310	124	2420	29	422
24	353	10000	206	3670	1560	113000	220	5570	123	2400	34	493
25	397	11100	4150	105000	1040	73600	240	6300	112	1970	59	836
26	337	8980	13000	558000	760	54200	220	5710	102	1690	64	859
27	346	9530	9900	535000	1940	122000	202	5180	94	1520	54	678
28	191	5260	3780	271000	3030	156000	165	4130	81	1260	54	783
29	191	5260	2950	226000	1660	10[illegible]000	168	4150	73	1170	57	880
30	311	8560	1870	125000	830	58900	166	3940	67	1080	46	578
31	---	---	1170	70100	---	---	169	3950	62	998	---	---
TOTAL	---	328000	---	2046600	---	2372900	---	387500	---	120648	---	26122

TOTAL LOAD FOR YEAR: 5716273 TONS.

MISSOURI RIVER MAIN STEM

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	MAY 28,80		JUN 19,80		JUL 17,80		AUG 27,80		SEP 17,80	
TIME	1500		1130		1230		1200		1230	
TOTAL CELLS/ML	4400		2200		9800		12000		6400	
DIVERSITY: DIVISION	0.0		0.7		0.4		0.8		0.8	
.CLASS	0.0		0.7		0.4		0.8		0.8	
..ORDER	0.6		1.4		1.3		1.0		1.5	
...FAMILY	2.5		1.8		1.7		1.1		1.8	
....GENUS	2.8		2.2		2.6		1.2		2.3	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	13	1	150	2	200	2	30	0
...COELASTRACEAE										
....COELASTRUM	--	-	410#	19	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	--	-	100	1	300	2	120	2
....CHLORELLA	--	-	13	1	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	100	1	--	-
....SELENASTRUM	--	-	--	-	--	-	100	1	120	2
...SCENEDESMACEAE										
....SCENEDESMUS	--	-	--	-	100	1	600	5	480	8
....TETRASTRUM	--	-	--	-	200	2	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	--	-	350	4	--	-	60	1
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	34	1	1100#	51	850	9	10000#	81	1000#	16
....MELOSIRA	550	13	140	6	2300#	23	--	-	3300#	51
....STEPHANODISCUS	69	2	--	-	3200#	33	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	13	1	--	-	--	-	--	-
....COCCONEIS	34	1	--	-	--	-	--	-	30	0
....RHOICOSPHENIA	140	3	--	-	--	-	--	-	--	-
...CYMBELLACEAE										
....AMPHORA	34	1	--	-	--	-	--	-	--	-
....CYMBELLA	140	3	--	-	--	-	--	-	--	-
....RHOPALODIA	34	1	--	-	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	340	8	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....ASTERIONELLA	--	-	150	7	1800#	18	--	-	--	-
....FRAGILARIA	34	1	210	9	--	-	--	-	360	6
....HANNAEA	34	1	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	240	5	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....NAVICULA	2000#	46	26	1	50	1	--	-	--	-
....PINNULARIA	34	1	--	-	--	-	--	-	--	-
...NITZSCHIACEAE										
....DENTICULA	34	1	--	-	--	-	--	-	--	-
....NITZSCHIA	450	10	90	4	750	8	500	4	690	11
...SURIRELLACEAE										
....SURIRELLA	170	4	13	1	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	--	-	--	-	--	-	120	2
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	--	-	--	-	600	5	120	2

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06115200 MISSOURI RIVER NEAR LANDUSKY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH FIELD (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	BAROMETRIC PRESSURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
AUG									
27...	1200	485	8.7	17.5	17.5	8.5	96	--	3
27...	1300	485	8.7	17.5	17.0	8.5	95	699	3
27...	1400	485	8.7	16.0	17.0	8.5	95	698	63
27...	1500	--	--	--	17.0	8.6	97	697	--
27...	1600	483	8.7	23.0	17.5	8.6	98	696	1
27...	1700	--	--	--	17.5	8.6	98	696	--
27...	1800	482	8.7	26.0	18.0	8.6	99	696	13
27...	1900	--	--	--	18.0	8.5	97	697	--
27...	2000	480	8.7	14.0	18.0	8.4	96	697	1
27...	2100	--	--	--	17.5	8.4	95	698	--
27...	2200	480	8.7	10.5	17.5	8.4	95	699	1
27...	2300	--	--	--	17.5	8.3	94	699	--
27...	2400	483	8.7	8.0	17.0	8.3	93	699	1
28...	0100	--	--	--	17.0	8.3	93	699	--
28...	0200	--	--	--	17.0	8.3	93	700	--
28...	0300	470	8.7	8.0	17.0	8.3	93	700	1
28...	0400	--	--	--	17.0	8.3	93	700	--
28...	0500	--	--	--	17.0	8.2	92	701	--
28...	0600	478	8.7	6.0	16.5	8.1	90	701	0
28...	0700	--	--	--	16.5	8.1	90	701	--
28...	0800	473	8.7	6.0	16.0	8.2	90	702	0
28...	0900	--	--	--	16.5	8.2	91	702	--
28...	1000	480	8.7	16.0	16.5	8.3	92	702	1
28...	1100	--	--	--	17.0	8.4	94	702	--
28...	1200	482	8.7	19.0	17.0	8.5	95	701	1
28...	1300	482	8.7	21.0	17.0	8.6	96	700	1

06120500 MUSSELSHELL RIVER AT HARLOWTON, MT

LOCATION.--Lat 46°25'48", long 109°50'24", in NE¼ sec.28, T.8 N., R.15 E., Wheatland County, Hydrologic Unit 10040201, on left bank 350 ft (107 m) downstream from bridge on U.S. Highway 191, 1.0 mi (1.6 km) southwest of Harlowton, 6 mi (10 km) upstream from American Fork, and at mile 327.8 (527.4 km).

DRAINAGE AREA.--1,125 mi^2 (2,914 km^2).

PERIOD OF RECORD.--July 1907 to November 1929, March 1930 to December 1932, April to August 1933, February 1934 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1912, 1915(M), 1918, 1925. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,171.46 ft (1,271.461 m) National Geodetic Vertical Datum of 1929 (levels by Morrison and Maierle, Inc.). Prior to Dec. 8, 1937, nonrecording gages at site 1.2 mi (1.9 km) downstream at different datums. Dec. 8, 1937, to Aug. 26, 1955, nonrecording gage at bridge 300 ft (90 m) upstream at different datums.

REMARKS.--Records good except those for winter period, which are poor. Some regulation by Bair and Martinsdale Reservoirs. Diversions for irrigation of about 37,000 acres (150 km^2) above station of which about 2,300 acres (9.31 km^2) is flood irrigated.

AVERAGE DISCHARGE.--70 years (water years 1908-29, 1931-32, 1935-78), 166 ft^3/s (4.701 m^3/s) 120,300 acre-ft/yr (148 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 7,270 ft^3/s (206 m^3/s) June 20, 1975, gage height, 10.10 ft (3.051 m); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,860 ft^3/s (52.7 m^3/s) June 17, gage height, 5.78 ft (1.762 m); minimum daily, 35 ft^3/s (0.99 m^3/s) Jan. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	77	64	92	78	84	72	189	1170	432	180	57
2	59	72	64	90	82	84	77	192	1090	403	187	50
3	60	77	70	86	88	80	80	177	973	354	194	43
4	72	78	72	86	86	68	83	187	908	337	199	40
5	63	82	68	76	84	66	92	161	794	318	194	43
6	60	82	70	60	86	72	106	134	779	299	210	44
7	53	82	69	45	84	74	114	120	1000	280	205	48
8	60	80	68	35	84	72	99	118	1000	251	202	64
9	69	78	74	37	82	74	92	97	845	223	202	80
10	70	75	74	40	83	88	94	168	789	215	197	77
11	69	75	70	42	83	92	95	344	784	182	187	99
12	67	72	71	50	72	90	97	240	871	152	187	165
13	69	72	70	65	66	86	97	182	824	156	180	154
14	70	68	80	70	60	92	104	134	683	172	147	149
15	70	75	66	72	58	90	120	108	839	152	108	126
16	78	75	54	72	58	100	130	82	1500	152	114	118
17	80	74	72	70	74	100	145	101	1740	147	112	106
18	78	75	96	68	78	110	143	210	1340	136	110	95
19	80	77	92	65	82	100	163	220	1130	138	94	112
20	82	74	90	69	82	88	202	194	962	122	75	95
21	78	72	88	72	80	84	265	226	924	114	70	87
22	67	72	88	72	79	80	364	220	860	83	69	83
23	64	70	86	72	78	82	311	234	764	82	69	80
24	64	68	88	74	78	80	237	357	769	94	61	83
25	64	66	90	66	80	78	245	764	692	170	56	83
26	64	64	90	54	86	74	242	1360	584	158	50	78
27	72	64	85	45	96	75	197	1540	517	149	49	73
28	80	60	80	46	92	74	175	1260	485	192	56	70
29	82	61	84	46	88	75	161	1040	451	189	66	63
30	80	64	90	52	---	83	163	1050	428	192	66	57
31	80	---	90	64	---	77	---	1140	---	180	57	---
TOTAL	2160	2181	2413	1953	2307	2572	4565	12549	26495	6224	3953	2522
MEAN	69.7	72.7	77.8	63.0	79.6	83.0	152	405	883	201	128	84.1
MAX	82	82	96	92	96	110	364	1540	1740	432	210	165
MIN	53	60	54	35	58	66	72	82	428	82	49	40
AC-FT	4280	4330	4790	3870	4580	5100	9050	24890	52550	12350	7840	5000

CAL YR 1979 TOTAL 92936 MEAN 255 MAX 3840 MIN 50 AC-FT 184300
WTR YR 1980 TOTAL 69894 MEAN 191 MAX 1740 MIN 35 AC-FT 138600

06126450 REHDER CREEK NEAR KLEIN, MT

LOCATION.--Lat 46°18'41", long 108°29'03", in NE¼SW¼SW¼ sec.33, T.7 N., R.26 E., Musselshell County, Hydrologic Unit 10040202, 100 ft (30.5 m) upstream from mouth and 6.5 mi (10.5 km) southeast of Klein.

DRAINAGE AREA.--23.1 mi^2 (59.8 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Flow not present during station visits.

06126470 HALFBREED CREEK NEAR KLEIN, MT

LOCATION.--Lat 46°23'14", long 108°32'29", in SW¼NE¼SW¼ sec.1, T.7 N., R.25 E., Musselshell County, Hydrologic Unit 10040201, on left bank, 800 ft (240 m) upstream from private road bridge, 3.2 mi (5.2 km) upstream from mouth, and 4.1 mi (6.6 km) south of Roundup.

DRAINAGE AREA.--53.2 mi^2 (137.8 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,330 ft (1,010 m), from topographic map.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. No known regulation or diversions above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 345 ft^3/s (9.77 m^3/s) May 23, 1978, gage height, 7.91 ft (2.411 m), from floodmark, from rating curve extended above 6.2 ft^3/s (0.18 m^3/s) on basis of slope-area measurement of peak flow; minimum daily, 0.35 ft^3/s (0.010 m^3/s) Dec. 8, 9, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9.1 ft^3/s (0.26 m^3/s) Aug. 15, gage height, 4.40 ft (1.341 m); minimum daily, 0.54 ft^3/s (0.015 m^3/s) Jan. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.5	1.2	1.7	.68	1.8	1.6	1.2	1.7	1.7	.93	1.6
2	1.3	1.4	1.3	1.5	1.8	2.2	1.8	1.4	1.3	1.6	.86	1.6
3	1.3	1.5	1.5	1.6	1.8	1.9	1.9	1.4	1.2	1.4	.93	1.6
4	1.4	1.5	1.9	1.6	1.7	1.9	1.9	1.2	1.2	1.4	1.2	1.5
5	1.4	1.6	1.9	1.5	1.5	1.9	1.7	1.2	1.2	1.3	1.1	1.5
6	1.4	1.6	1.8	1.5	1.6	1.9	1.7	1.2	1.3	1.2	1.0	1.4
7	1.4	1.6	1.6	1.5	1.6	1.9	1.7	1.2	1.5	1.1	.93	1.3
8	1.5	1.5	1.6	1.4	1.6	1.9	1.6	1.2	1.3	1.1	.93	1.4
9	1.5	1.5	1.7	1.4	1.6	2.0	1.6	1.4	1.2	1.1	1.1	1.5
10	1.5	1.6	1.5	1.3	1.6	2.2	1.6	1.2	1.2	1.1	1.1	1.4
11	1.5	1.6	1.1	1.0	1.6	1.9	1.7	1.2	1.2	1.0	1.0	1.4
12	1.5	1.5	1.4	1.2	1.6	1.9	1.7	1.1	1.2	1.0	.93	1.5
13	1.5	1.4	1.4	1.5	1.7	1.9	1.6	1.2	1.3	1.1	.93	1.4
14	1.5	1.5	1.5	1.6	1.7	2.2	1.6	1.2	1.2	1.3	1.0	1.4
15	1.5	1.5	1.2	1.7	1.6	2.0	1.6	1.2	1.8	1.4	1.6	1.4
16	1.9	1.4	.58	1.6	1.4	1.9	1.6	1.2	1.7	1.2	2.6	1.5
17	1.7	1.5	1.2	1.6	1.4	1.8	1.5	1.2	1.5	1.2	2.0	1.6
18	1.5	1.5	1.9	1.6	1.4	1.7	1.6	1.3	1.4	1.3	1.6	1.4
19	1.5	1.5	1.9	1.5	1.7	1.6	1.5	1.5	1.9	1.2	1.6	1.6
20	1.5	1.3	1.8	1.6	1.7	1.6	1.4	1.3	2.7	1.2	1.6	1.6
21	1.5	1.2	1.7	1.7	1.9	1.5	1.5	1.2	1.8	1.2	1.6	1.4
22	1.5	1.2	1.7	1.7	1.9	1.5	1.4	1.2	1.7	1.2	1.6	1.5
23	1.5	1.2	1.7	1.7	1.9	1.5	1.5	1.4	1.6	1.0	1.7	1.4
24	1.5	1.3	1.7	1.7	1.7	1.5	1.4	1.7	1.8	1.2	1.7	1.4
25	1.6	1.3	1.8	1.3	1.7	1.5	1.9	2.0	1.8	1.1	1.6	1.5
26	1.6	1.2	1.7	1.1	2.2	1.5	1.9	1.9	1.6	1.1	1.5	1.5
27	1.5	1.2	1.6	.98	2.6	1.6	1.6	1.6	1.5	1.1	1.6	1.5
28	1.5	1.1	1.6	.70	1.8	1.7	1.3	1.5	1.5	.93	1.7	1.4
29	1.5	1.2	1.5	.54	1.6	1.7	1.4	1.4	1.6	.93	1.7	1.3
30	1.5	1.3	1.5	.58	---	1.7	1.3	2.3	1.6	.93	1.6	1.3
31	1.5	---	1.6	.60	---	1.6	---	2.3	---	.93	1.6	---
TOTAL	46.3	42.2	48.08	42.50	48.58	55.4	48.1	43.5	45.5	36.52	42.84	43.8
MEAN	1.49	1.41	1.55	1.37	1.68	1.79	1.60	1.40	1.52	1.18	1.38	1.46
MAX	1.9	1.6	1.9	1.7	2.6	2.2	1.9	2.3	2.7	1.7	2.6	1.6
MIN	1.3	1.1	.58	.54	.68	1.5	1.3	1.1	1.2	.93	.86	1.3
AC-FT	92	84	95	84	96	110	95	86	90	72	85	87

CAL YR 1979 TOTAL 583.40 MEAN 1.60 MAX 4.5 MIN .58 AC-FT 1160
WTR YR 1980 TOTAL 543.32 MEAN 1.48 MAX 2.7 MIN .54 AC-FT 1080

06126470 HALFBREED CREEK NEAR KLEIN, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT												
18...	1330	1.6	1	1660	8.3	12.0	9.5	10.0	99	660	180	82
NOV												
07...	1345	1.7	1	1650	8.2	5.0	4.0	12.1	104	610	150	80
DEC												
05...	1315	1.8	1	1430	8.2	7.0	1.5	10.6	86	570	160	77
JAN												
09...	1400	1.5	1	1600	7.9	-13.0	1.0	10.2	82	580	130	82
FEB												
13...	0900	1.7	74	1510	8.1	-4.0	1.0	10.6	84	570	160	80
MAR												
18...	1345	1.8	1	1500	8.2	12.5	4.0	10.5	91	560	160	76
APR												
15...	1550	1.6	1	1680	8.2	13.0	10.0	10.5	105	600	140	77
MAY												
26...	1015	2.0	1	1850	8.2	17.0	11.0	7.2	74	640	150	73
JUN												
16...	1530	1.8	1	1580	8.4	23.0	20.0	8.4	103	620	120	82
JUL												
15...	1345	1.4	1	1550	8.5	22.0	19.0	8.8	107	570	160	75
AUG												
14...	1345	1.0	1	1540	8.4	23.5	19.5	10.4	128	570	160	72
SEP												
10...	1330	1.4	1	1540	8.3	24.0	15.0	9.6	107	580	190	77

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
OCT												
18...	110	170	2.9	13	480	510	24	.2	.1	.00	9.8	1210
NOV												
07...	99	150	2.6	9.3	460	490	13	.3	--	--	11	1130
DEC												
05...	92	150	2.7	8.8	410	420	12	.2	--	--	13	1020
JAN												
09...	91	140	2.5	8.1	450	450	14	.2	.1	.00	14	1070
FEB												
13...	90	140	2.6	7.8	410	470	15	.3	--	--	13	1060
MAR												
18...	91	150	2.7	7.8	400	440	13	.2	--	--	11	1030
APR												
15...	100	170	3.0	7.9	460	500	15	.3	.1	.00	6.0	1150
MAY												
26...	110	200	3.5	9.2	490	560	13	.2	.1	--	14	1280
JUN												
16...	100	160	2.8	7.5	500	430	12	.6	--	--	13	1110
JUL												
15...	94	140	2.5	9.5	410	460	16	.4	.3	.00	11	1050
AUG												
14...	95	140	2.6	10	410	450	15	.3	--	--	9.4	1040
SEP												
10...	95	140	2.5	12	410	460	19	.3	.0	.00	10	1050

06126470 HALFBREED CREEK NEAR KLEIN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 18...	1.65	5.23	.36	.02	.64	.66	.03	12	.2	120	80
NOV 07...	1.54	5.19	1.4	.03	.53	.56	.01	--	--	90	50
DEC 05...	1.39	4.96	1.5	.03	.58	.61	.02	--	--	80	60
JAN 09...	1.46	4.33	1.9	.15	1.1	1.2	.03	8.4	.2	90	30
FEB 13...	1.44	4.87	1.9	.17	.33	.50	.02	--	--	90	50
MAR 18...	1.40	5.01	1.2	.13	.46	.59	.05	--	--	80	40
APR 15...	1.56	4.97	.37	.13	.85	.98	.05	10	--	220	30
MAY 26...	1.74	6.91	.15	.16	2.8	3.0	.07	15	.5	160	140
JUN 16...	1.51	5.39	.06	.09	1.2	1.3	.05	--	--	130	40
JUL 15...	1.43	3.97	.02	.03	.97	1.0	.05	11	--	130	30
AUG 14...	1.41	2.81	.00	.00	.43	.43	.03	--	--	130	< 10
SEP 10...	1.43	3.97	.24	.04	.58	.62	.04	7.7	--	100	20

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAY 26...	1015	6	5	0	< 1	1	1	0
SEP 10...	1330	3	3	0	< 1	0	< 1	0

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAY 26...	0	1	2	1200	2	2	150	120
SEP 10...	0	18	3	390	31	3	70	50

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY 26...	.0	.0	5	7	1	1	40	20
SEP 10...	.0	.0	8	1	2	2	60	6

06126470 HALFBREED CREEK NEAR KLEIN, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER- ATURE, WATER (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
OCT					
18...	1330	9.5	1.6	41	.18
NOV					
07...	1345	4.0	1.7	70	.32
DEC					
05...	1315	1.5	1.8	23	.11
JAN					
09...	1400	1.0	1.5	36	.15
FEB					
13...	0900	1.0	1.7	23	.11
MAR					
18...	1345	4.0	1.8	25	.12
APR					
15...	1550	10.0	1.6	51	.22
MAY					
26...	1015	11.0	2.0	10	.05
JUN					
16...	1530	20.0	1.8	19	.09
JUL					
15...	1345	19.0	1.4	26	.10
AUG					
14...	1345	19.5	1.0	49	.13
SEP					
10...	1330	15.0	1.4	32	.12

06126500 MUSSELSHELL RIVER NEAR ROUNDUP, MT

LOCATION.--Lat 46°25'48", long 108°34'18", in NW¼SE¼SE¼ sec.22, T.8 N., R.25 E., Musselshell County, Hydrologic Unit 10040202, on left bank 20 ft (6 m) downstream from Half Breed Creek, 0.1 mi (0.2 km) upstream from bridge on U.S. Highway 87, 2.0 mi (3.2 km) southwest of Roundup, and at mile 211.6 (340.5 km).

DRAINAGE AREA.--4,023 mi^2 (10,420 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1946 to current year. Monthly discharge only for October 1947 to September 1949, published in WSP 1309.

REVISED RECORDS.--WSP 1086: 1946. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,188.15 ft (971.748 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Sept. 26, 1949, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Some regulation by Bair (station number 06116500), Martinsdale (station number 06119000), and Deadman's Basin (station number 06122500) Reservoirs. Diversions for irrigation of about 59,600 acres (241 km^2) above station, of which about 11,000 acres (44.5 km^2) is flood irrigated.

AVERAGE DISCHARGE.--34 years, 229 ft^3/s (6.485 m^3/s), 165,900 acre-ft/yr (205 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,610 ft^3/s (272 m^3/s) June 18, 1967, gage height, 12.45 ft (3.795 m); maximum gage height, 13.73 ft (4.185 m) Mar. 9, 1979 (ice jam); minimum discharge, 0.60 ft^3/s (0.017 m^3/s) May 12, 1962, gage height, 0.63 ft (0.192 m); minimum gage height, 0.23 ft (0.070 m) July 31, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,260 ft^3/s (64.0 m^3/s) June 19, gage height, 5.89 ft (1.795 m); minimum, 28 ft^3/s (0.79 m^3/s) May 6, gage height, 0.61 ft (0.186 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	117	145	125	100	230	152	74	1340	320	249	132
2	87	117	140	115	125	300	142	76	1270	435	229	138
3	97	117	140	110	125	295	144	62	1230	442	231	138
4	93	118	140	105	120	290	164	64	1080	421	221	132
5	90	121	140	100	120	270	181	60	946	393	229	126
6	74	126	135	90	115	230	190	35	837	341	244	121
7	69	126	135	80	115	230	193	118	763	299	255	114
8	67	129	120	70	112	240	242	233	873	229	274	114
9	66	131	135	54	110	250	226	216	990	209	296	121
10	66	129	105	57	110	260	200	204	807	181	308	130
11	67	131	86	50	112	270	190	177	658	170	257	138
12	73	128	90	68	116	290	190	202	610	211	239	146
13	81	120	100	90	110	320	190	341	712	216	190	150
14	80	115	130	130	100	325	181	299	867	285	170	162
15	82	115	110	130	100	310	168	263	768	351	172	170
16	89	115	70	125	100	290	168	181	930	360	221	170
17	93	123	95	125	110	240	181	154	1490	345	234	160
18	98	131	130	110	120	200	181	134	2080	354	221	132
19	102	129	135	100	130	180	170	119	2220	377	214	100
20	108	116	140	105	140	170	166	158	1920	380	207	89
21	121	107	140	110	135	165	168	202	1520	367	168	83
22	118	120	135	115	130	165	160	188	1240	348	136	81
23	120	130	130	120	150	160	152	255	1410	311	125	99
24	118	120	130	125	180	160	140	288	1170	311	126	100
25	112	115	135	86	200	158	132	390	852	296	121	100
26	109	105	130	60	210	158	114	867	744	285	121	102
27	106	90	125	60	205	164	104	1170	597	288	114	105
28	105	96	115	62	205	152	100	1520	505	293	116	99
29	105	120	110	66	200	146	96	1520	417	293	121	79
30	109	130	120	72	---	144	85	1230	348	302	121	71
31	115	---	130	80	---	148	---	1280	---	296	126	---
TOTAL	2907	3587	3821	2895	3905	6910	4870	12080	31194	9709	6056	3602
MEAN	93.8	120	123	93.4	135	223	162	390	1040	313	195	120
MAX	121	131	145	130	210	325	242	1520	2220	442	308	170
MIN	66	90	70	50	100	144	85	35	348	170	114	71
AC-FT	5770	7110	7580	5740	7750	13710	9660	23960	61870	19260	12010	7140

CAL YR 1979 TOTAL 161166 MEAN 442 MAX 4280 MIN 66 AC-FT 319700
WTR YR 1980 TOTAL 91536 MEAN 250 MAX 2220 MIN 35 AC-FT 181600

06126500 MUSSELSHELL RIVER NEAR ROUNDUP, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT 18...	1115	98	1	1710	8.4	12.0	10.0	9.6	96	610	350	110
NOV 07...	1030	126	3	1710	8.5	8.0	2.5	12.1	99	580	310	110
DEC 05...	1030	140	1	1740	8.3	7.0	1.0	12.3	97	630	330	120
JAN 10...	1030	57	73	1970	8.1	-17.0	.0	11.5	91	670	310	130
FEB 12...	1500	116	73	1750	8.1	-2.0	.5	12.1	95	600	290	120
MAR 18...	1000	177	2	1580	8.1	9.0	1.0	11.9	95	500	280	92
APR 16...	0830	170	0	2090	8.5	13.0	9.0	9.9	95	700	420	120
MAY 27...	1500	1210	1	1080	8.3	22.0	14.0	7.5	82	330	170	68
JUN 17...	1115	1400	0	960	8.4	21.0	17.0	7.9	91	290	100	63
JUL 15...	1015	357	0	1040	8.5	21.0	19.0	7.6	91	350	140	73
AUG 14...	1030	182	1	1380	8.4	17.5	19.0	8.5	103	440	210	83
SEP 10...	1030	124	1	1360	8.4	19.0	16.0	8.5	96	440	230	82

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
OCT 18...	81	190	3.4	5.9	260	710	23	.4	.2	.00	5.4	1280
NOV 07...	75	170	3.1	5.0	270	660	18	.4	--	--	6.9	1210
DEC 05...	81	180	3.1	4.0	300	690	18	.4	--	--	7.1	1280
JAN 10...	83	190	3.2	4.7	360	730	21	.4	.2	.01	7.6	1380
FEB 12...	72	160	2.9	4.0	310	630	12	.4	--	--	7.8	1190
MAR 18...	66	180	3.5	5.0	220	630	20	.3	--	--	6.5	1130
APR 16...	96	230	3.8	5.2	280	810	30	.4	.3	.01	4.5	1470
MAY 27...	38	100	2.4	4.7	160	370	9.3	.3	.1	.00	9.4	696
JUN 17...	33	95	2.4	3.8	190	290	7.1	.4	--	--	9.3	616
JUL 15...	41	88	2.0	3.8	210	330	8.4	.5	.1	.01	8.4	680
AUG 14...	56	140	2.9	5.9	240	500	12	.4	--	--	5.8	942
SEP 10...	57	140	2.9	5.2	230	520	13	.4	.0	.01	6.0	950

MUSSELSHELL RIVER BASIN

06126500 MUSSELSHELL RIVER NEAR ROUNDUP, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 18...	1.74	339	.07	.01	.42	.43	.07	4.8	.3	200	30
NOV 07...	1.65	412	.06	.04	.39	.43	.01	--	--	180	10
DEC 05...	1.74	484	.32	.03	.40	.43	.02	--	--	170	20
JAN 10...	1.88	212	.29	.04	.96	1.0	.00	13	.2	180	30
FEB 12...	1.62	373	.39	.04	.62	.66	.02	--	--	170	20
MAR 18...	1.54	540	.24	.08	.59	.67	.11	--	--	140	20
APR 16...	2.00	675	.01	.04	.73	.77	.04	7.8	--	270	20
MAY 27...	.95	2270	.14	.07	3.9	4.0	1.4	7.1	4.1	130	240
JUN 17...	.84	2330	.11	.03	3.4	3.4	.69	--	--	120	40
JUL 15...	.92	655	.02	.04	.49	.53	.14	7.5	1.1	130	< 10
AUG 14...	1.28	463	.00	.02	.72	.74	.03	--	--	190	< 10
SEP 10...	1.29	318	.00	.02	.53	.55	.02	8.5	--	170	< 10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAY 27...	1500	14	9	0	< 1	1	3	40	0	39	13	60000
SEP 10...	1030	2	2	0	< 1	0	< 1	0	0	6	3	240

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY 27...	44	7	1800	40	.1	.0	48	12	2	1	250	30
SEP 10...	1	1	20	6	.0	.0	8	0	1	1	20	3

06126500 MUSSELSHELL RIVER NEAR ROUNDUP, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 18...	1115	10.0	98	25	6.6	--	--	--	--	--	84
NOV 07...	1030	2.5	126	33	11	--	--	--	--	--	69
DEC 05...	1030	1.0	140	106	40	--	--	--	--	--	85
JAN 10...	1030	.0	57	8	1.2	--	--	--	--	--	63
FEB 12...	1500	.5	116	41	13	--	--	--	--	--	97
MAR 18...	1000	1.0	177	150	72	--	--	--	--	--	89
APR 16...	0830	9.0	170	98	45	--	--	--	--	--	95
MAY 27...	1500	14.0	1210	2920	9540	43	62	84	91	100	--
JUN 17...	1115	17.0	1400	2080	7860	--	--	--	--	--	81
JUL 15...	1015	19.0	357	263	254	--	--	--	--	--	90
AUG 14...	1030	19.0	182	76	37	--	--	--	--	--	93
SEP 10...	1030	16.0	124	29	9.7	--	--	--	--	--	81

06127150 EAST PARROT CREEK NEAR ROUNDUP, MT

LOCATION.--Lat 46°22'55", long 108°20'15", in SW¼NE¼SE¼ sec.3, T.7 N., R.27 E., Musselshell County, Hydrologic Unit 10040202, 5.2 mi (8.3 km) upstream from mouth and 11.0 mi (17.7 km) east of Roundup.

DRAINAGE AREA.--20.2 mi^2 (52.3 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 18...	0830	.24	0	1720	8.3	.0	6.0	10.0	91	740	260	82
NOV 06...	1415	.37	1	1700	8.5	9.0	8.0	13.0	123	690	230	78
DEC 04...	1345	.41	1	1550	8.5	15.5	3.5	12.4	107	690	260	78
APR 15...	1200	.06	2	1620	8.6	13.0	12.0	10.3	109	690	240	80
MAY 26...	0815	.15	2	1610	8.3	14.0	9.0	8.7	86	660	220	68
JUN 16...	1145	E.02	1	1560	8.7	20.5	21.0	11.8	148	640	170	58
JUL 14...	1145	E.01	1	1620	8.9	23.0	23.0	13.3	175	640	250	41

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 18...	130	150	2.4	11	480	570	18	.2	.1	.00	12	1260
NOV 06...	120	140	2.3	10	460	540	14	.2	--	--	12	1190
DEC 04...	120	140	2.3	8.5	430	500	13	.2	--	--	12	1130
APR 15...	120	130	2.1	8.1	450	510	15	.2	.1	.00	5.8	1140
MAY 26...	120	130	2.2	9.6	440	470	13	.2	.1	--	9.5	1090
JUN 16...	120	130	2.2	8.7	470	450	14	.3	--	--	4.1	1070
JUL 14...	130	130	2.2	8.7	390	520	15	.3	.2	.01	10	1090

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 18...	1.71	.82	.61	.00	.37	.37	.01	5.9	.2	120	< 10
NOV 06...	1.62	1.19	1.1	.03	.46	.49	.01	--	--	120	10
DEC 04...	1.54	1.25	.97	.05	.63	.68	.01	--	--	80	< 10
APR 15...	1.55	.18	.41	.02	.72	.74	.01	6.0	.4	1300	< 10
MAY 26...	1.48	.44	.15	.09	.63	.72	.03	12	.4	1100	40
JUN 16...	1.46	E.06	.06	.00	.83	.83	.02	--	--	120	< 10
JUL 14...	1.48	E.03	.04	.00	.58	.58	.03	11	.3	130	10

06127150 EAST PARROT CREEK NEAR ROUNDUP, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
APR 15...	1200	2	2	0	< 1	0	< 1	20	0	3	0	130
MAY 26...	0815	3	3	0	< 1	1	0	0	0	1	1	300

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR 15...	2	0	20	10	.1	.0	11	2	2	2	40	4
MAY 26...	7	1	20	20	.0	.0	4	5	1	1	10	20

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT 18...	0830	6.0	.24	33	.02
NOV 06...	1415	8.0	.37	18	.02
DEC 04...	1345	3.5	.41	8	.01
APR 15...	1200	12.0	.06	33	.01
MAY 26...	0815	9.0	.15	14	.01
JUN 16...	1145	21.0	E.02	22	.00
JUL 14...	1145	23.0	E.01	11	.00

MUSSELSHELL RIVER BASIN

06127160 WEST PARROT CREEK NEAR ROUNDUP, MT

LOCATION.--Lat 46°25'57", long 108°25'07", in NW¼NE¼SW¼ sec.24, T.8 N., R.26 E., Musselshell County, Hydrologic Unit 10040202, 1.0 mi (0.6 km) upstream from mouth, and 4.5 mi (7.2 km) east of Roundup.

DRAINAGE AREA.--20.5 mi^2 (53.1 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 17...	1630	.58	1	1420	8.2	17.0	15.0	10.2	114	380	0	55
NOV 06...	1500	.66	0	1420	8.1	5.0	11.0	10.3	104	380	0	59
DEC 04...	1500	.46	1	1380	8.1	13.5	9.5	9.2	92	390	0	55
JAN 09...	1530	.53	1	1410	8.1	-12.0	4.5	10.1	89	350	0	51
FEB 12...	1100	.58	73	1440	8.1	-2.0	5.0	10.1	90	360	0	51
MAR 17...	1330	.47	1	1400	8.3	9.5	11.5	11.9	123	370	0	52
APR 15...	1400	.37	1	1390	8.3	18.0	10.0	11.3	113	360	0	51
MAY 28...	0830	.34	1	1400	8.1	18.0	10.0	7.9	79	360	0	52
JUN 16...	1315	.31	1	1380	8.5	21.0	19.5	12.4	150	350	28	47
JUL 15...	1515	.19	1	1340	8.6	22.0	23.0	12.1	158	350	0	48
AUG 12...	1345	.15	1	1390	8.4	21.0	22.0	11.0	140	350	0	49
SEP 09...	1345	.15	0	1380	8.4	22.0	17.5	11.4	132	360	0	51

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 17...	60	190	4.2	6.8	400	390	13	.3	.1	.00	8.4	964
NOV 06...	56	200	4.5	6.5	390	390	11	.3	--	--	8.0	965
DEC 04...	62	200	4.4	9.8	400	380	12	.3	--	--	8.6	968
JAN 09...	55	170	3.9	5.4	380	350	13	.3	.1	.00	8.0	881
FEB 12...	56	180	4.1	5.0	380	360	12	.3	--	--	7.0	900
MAR 17...	58	190	4.3	5.5	370	370	12	.3	--	--	6.2	917
APR 15...	56	190	4.4	5.2	380	370	12	.3	.1	.00	5.2	919
MAY 28...	57	200	4.6	5.5	390	360	11	.3	.1	.00	7.8	928
JUN 16...	56	180	4.2	5.8	320	360	11	.2	--	--	7.0	859
JUL 15...	57	180	4.2	6.1	380	350	12	.5	.2	.01	6.8	889
AUG 12...	55	180	4.2	6.9	390	340	12	.4	--	--	6.7	885
SEP 09...	56	190	4.4	6.8	400	370	13	.4	.0	.00	8.3	930

06127160 WEST PARROT CREEK NEAR ROUNDUP, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED (MG/L AS C) (00689)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT 17...	1.31	1.51	2.0	.04	.53	.57	.01	3.2	.2	70	10
NOV 06...	1.31	1.72	2.5	.09	.33	.42	.01	--	--	60	10
DEC 04...	1.32	1.20	2.3	.03	.51	.54	.01	--	--	60	20
JAN 09...	1.20	1.26	2.2	.04	1.1	1.1	.02	13	.2	70	20
FEB 12...	1.22	1.41	2.1	.01	.47	.48	.01	--	--	60	10
MAR 17...	1.25	1.16	1.9	.00	.24	.24	.03	--	--	60	20
APR 15...	1.25	.92	1.8	.00	.51	.51	.01	5.4	.3	--	< 10
MAY 28...	1.26	.85	1.6	.14	.53	.67	.01	5.0	.2	70	10
JUN 16...	1.17	.72	1.5	.03	.67	.70	.02	--	--	70	< 10
JUL 15...	1.21	.46	1.7	.03	.44	.47	.02	11	.2	80	10
AUG 12...	1.20	.36	1.7	.01	.53	.54	.01	--	--	100	< 10
SEP 09...	1.26	.38	1.9	.03	.51	.54	.01	4.4	--	80	< 10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)
MAY 28...	0830	2	2	0	< 1	0	< 1	0	0	1	0	130
SEP 09...	1345	1	4	0	< 1	0	< 1	0	0	3	9	1200

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
MAY 28...	1	2	30	20	.4	.0	2	6	2	2	20	6
SEP 09...	0	2	90	6	.0	.0	6	0	2	2	20	7

06127160 WEST PARROT CREEK NEAR ROUNDUP, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT					
17...	1630	15.0	.58	12	.02
NOV					
06...	1500	11.0	.66	7	.01
DEC					
04...	1500	9.5	.46	15	.02
JAN					
09...	1530	4.5	.53	33	.05
FEB					
12...	1100	5.0	.58	5	.01
MAR					
17...	1330	11.5	.47	9	.01
APR					
15...	1400	10.0	.37	11	.01
MAY					
28...	0830	10.0	.34	5	.00
JUN					
16...	1315	19.5	.31	5	.00
JUL					
15...	1515	23.0	.19	17	.01
AUG					
12...	1345	22.0	.15	10	.00
SEP					
09...	1345	17.5	.15	15	.01

06127300 FATTIG CREEK NEAR DELPHIA, MT

LOCATION.--Lat 46°29'58", long 108°16'40", in NE¼NE¼NE¼ sec.24, T.7 N., R.27 E., Musselshell County, Hydrologic Unit 10040202, approximately 5 mi (8 km) upstream from Carters Coulee and 11.5 mi (18.5 km) south of Delphia.

DRAINAGE AREA.--22.9 mi^2 (59.3 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 17...	1100	.24	1	2490	8.3	15.0	9.5	11.4	113	930	400	59
NOV 06...	1130	.14	1	2420	8.3	3.0	4.0	13.5	116	990	460	100
DEC 04...	1015	.12	1	2280	8.3	14.0	1.0	10.4	84	870	370	85
APR 15...	1015	.04	2	2500	8.4	12.0	14.0	11.3	125	910	400	100
MAY 25...	1745	.31	3	2250	8.6	13.0	14.5	10.0	114	800	360	73
JUN 16...	1015	.11	1	2470	8.4	21.0	18.5	11.4	137	800	290	180
JUL 14...	1030	.08	0	2440	8.5	21.0	19.0	10.7	130	940	460	81
AUG 12...	1015	.05	1	2460	8.4	23.5	18.5	8.5	102	870	420	69
SEP 09...	1015	.05	0	2450	8.4	15.0	11.5	10.8	110	950	470	85

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 17...	190	290	4.1	14	530	1000	24	.3	.1	.00	12	1910
NOV 06...	180	280	3.9	12	530	960	18	.3	--	--	11	1880
DEC 04...	160	250	3.7	10	500	870	16	.2	--	--	11	1700
APR 15...	160	270	3.9	10	510	920	19	.3	.1	.00	4.8	1790
MAY 25...	150	240	3.7	4.6	440	840	19	.2	.2	--	9.6	1610
JUN 16...	85	270	4.2	11	510	900	20	.4	--	--	9.5	1780
JUL 14...	180	270	3.8	12	480	960	19	.4	.2	.01	4.2	1820
AUG 12...	170	280	4.1	15	470	950	19	.3	--	--	2.8	1780
SEP 09...	180	260	3.7	14	490	960	20	.3	--	--	4.7	1810

MUSSELSHELL RIVER BASIN

06127300 FATTIG CREEK NEAR DELPHIA, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED (MG/L AS C) (00689)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT 17...	2.60	1.24	.28	.01	.39	.40	.01	9.6	.2	180	80
NOV 06...	2.56	.71	.84	.01	.65	.66	.00	--	--	160	10
DEC 04...	2.31	.55	.89	.08	.61	.69	.01	--	--	130	10
APR 15...	2.43	.19	.36	.08	.64	.72	.02	11	.3	--	30
MAY 25...	2.19	1.35	.17	.11	1.2	1.3	.05	29	.6	210	70
JUN 16...	2.42	.53	.04	.01	.98	.99	.02	--	--	180	40
JUL 14...	2.48	.39	.00	.01	.53	.54	.02	19	.1	190	30
AUG 12...	2.42	.24	.00	.00	.55	.55	.01	--	--	190	20
SEP 09...	2.46	.24	.00	.03	.53	.56	.01	--	--	170	20

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)
APR 15...	1015	1	2	0	0	0	0	30
MAY 25...	1745	3	3	0	0	1	0	0

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
APR 15...	0	3	6	250	2	0	40	20
MAY 25...	0	8	3	250	6	2	10	10

DATE	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
APR 15...	.1	.0	14	3	1	1	60	10
MAY 25...	.0	.0	5	6	1	1	50	40

06127300 FATTIG CREEK NEAR DELPHIA, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
17...	1100	9.5	.24	44	.03
NOV					
06...	1130	4.0	.14	91	.03
DEC					
04...	1015	1.0	.12	67	.02
APR					
15...	1015	14.0	.04	33	.00
MAY					
25...	1745	14.5	.31	7	.01
JUN					
16...	1015	18.5	.11	12	.00
JUL					
14...	1030	19.0	.08	29	.01
AUG					
12...	1015	18.5	.05	84	.01
SEP					
09...	1015	11.5	.05	27	.00

MUSSELSHELL RIVER BASIN

06130500 MUSSELSHELL RIVER AT MOSBY, MT

LOCATION.--Lat 46°59'41", long 107°53'18", in SW¼NW¼NW¼ sec.11, T.14 N., R.30 E., Petroleum County, Hydrologic Unit 10040205, near center of downstream side of bridge on State Highway 20, 0.3 mi (0.5 km) west of Mosby, 10.9 (17.5 km) downstream from Flatwillow Creek, and at mile 60.0 (96.5 km).

DRAINAGE AREA.--7,846 mi^2 (20,321 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May to November 1929, March 1930 to September 1932, February 1934 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1559: 1935-36. WSP 1729: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is 2,493.38 ft (759.982 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Dec. 6, 1962, to Mar. 14, 1966, water-stage recorder at site 900 ft (274 m) downstream at different datum. Mar. 15, 1966, to Dec. 11, 1973, water-stage recorder and nonrecording gages at site 100 ft (30 m) downstream at same datum. See WSP 2116 for history of changes prior to 1962.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Some regulation by Bair (station number 06116500), Martinsdale (station number 06119000), and Deadman's Basin (station number 06122500) Reservoirs. Diversions for irrigation of about 103,000 acres (417 km^2) above station.

AVERAGE DISCHARGE.--48 years (water years 1931-32, 1935-80), 295 ft^3/s (8.354 m^3/s) 213,700 acre-ft/yr (263 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft^3/s (510 m^3/s) June 18, 1944, gage height, 14.43 ft (4.307 m); maximum gage height, 15.1 ft (4.60 m) Mar. 12, 1979, from floodmark (backwater from ice jam); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 2,000 ft^3/s (62.9 m^3/s) June 20; maximum gage height observed, 5.60 ft (1.707 m) Mar. 5 (backwater from ice) and June 20; minimum daily discharge, 8.1 ft^3/s (0.23 m^3/s) May 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	142	135	130	120	370	251	74	1010	336	131	72
2	109	142	177	125	150	340	263	65	1120	285	153	72
3	114	150	201	125	140	300	276	55	1130	231	139	55
4	104	156	218	120	140	270	269	36	1100	305	139	55
5	91	156	211	115	135	260	269	24	1030	285	139	52
6	106	165	198	96	135	300	276	18	893	260	139	47
7	100	171	242	82	130	320	276	15	837	260	126	55
8	100	171	248	76	140	360	288	11	732	218	126	52
9	93	162	257	64	140	390	302	10	682	162	153	49
10	93	183	201	64	135	370	292	8.1	784	106	177	56
11	93	165	180	62	130	390	315	9.0	821	70	225	62
12	87	183	100	100	135	400	295	39	722	56	254	67
13	87	162	80	140	130	430	276	35	950	33	189	100
14	91	186	180	125	120	450	266	34	541	45	192	111
15	91	171	160	125	100	440	266	32	702	39	231	126
16	97	171	70	115	110	430	254	124	757	36	506	129
17	100	162	120	120	120	440	248	111	712	70	214	144
18	104	165	153	120	125	450	238	91	1020	147	205	156
19	111	165	140	110	145	460	238	56	1680	150	211	174
20	111	153	140	115	140	460	245	37	2000	168	225	177
21	121	145	135	125	130	440	238	21	1650	195	205	134
22	139	240	135	130	130	430	235	17	1650	221	201	114
23	144	170	130	140	145	430	235	14	1170	205	171	95
24	171	162	130	140	140	400	214	13	1260	205	171	85
25	171	165	130	115	190	380	183	93	1160	156	126	83
26	171	242	135	96	250	350	159	225	843	156	95	106
27	183	120	130	80	340	315	142	340	702	156	87	119
28	165	80	125	70	370	292	121	663	619	142	85	109
29	162	100	120	70	400	282	93	1080	497	121	85	119
30	156	120	120	70	---	266	81	1270	424	134	77	124
31	147	---	125	90	---	251	---	1190	---	136	74	---
TOTAL	3721	4825	4826	3255	4715	11466	7104	5810.1	29198	5089	5251	2899
MEAN	120	161	156	105	163	370	237	187	973	164	169	96.6
MAX	183	242	257	140	400	460	315	1270	2000	336	506	177
MIN	87	80	70	62	100	251	81	8.1	424	33	74	47
AC-FT	7380	9570	9570	6460	9350	22740	14090	11520	57910	10090	10420	5750

CAL YR 1979 TOTAL 326038.0 MEAN 893 MAX 13000 MIN 70 AC-FT 646700
WTR YR 1980 TOTAL 88159.1 MEAN 241 MAX 2000 MIN 8.1 AC-FT 174900

06130500 MUSSELSHELL RIVER AT MOSBY, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.

REMARKS.--Once-daily water temperatures are available in District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,900 micromhos Aug. 14, 1977; minimum daily, 678 micromhos Mar. 23, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,660 micromhos May 26; minimum daily, 802 micromhos June 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	COLOR (PLATINUM COBALT UNITS) (00080)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)
OCT											
23...	1330	142	1	2290	8.4	20.0	9.0	--	3.4	10.8	102
NOV											
27...	1330	103	2	2520	8.3	-3.0	1.0	--	10	12.6	94
DEC											
18...	1345	153	1	2540	8.2	19.5	1.0	--	7.1	11.9	92
JAN											
22...	1430	135	2	2350	8.1	2.5	.5	5	23	14.4	109
FEB											
13...	1445	130	73	2600	8.2	-7.0	.5	--	3.5	11.8	89
MAR											
19...	1200	460	1	1710	8.1	8.0	1.5	--	80	11.4	90
APR											
16...	1400	256	0	2450	8.5	18.5	14.0	5	11	9.5	100
MAY											
22...	1330	17	1	2590	8.2	34.5	25.0	--	5.4	7.3	98
29...	1130	1100	1	1190	8.3	20.0	17.0	--	2000	6.0	68
JUN											
18...	1445	1060	1	970	8.5	30.0	23.0	--	180	7.0	89
JUL											
16...	1100	37	0	1970	8.3	27.0	20.0	25	34	7.8	93
AUG											
13...	1130	185	2	1470	8.5	20.5	20.5	--	17	8.1	97
SEP											
16...	1400	124	1	1850	8.5	18.0	14.5	--	6.6	10.0	108

DATE	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)
OCT											
23...	K30	K28	750	510	120	110	260	4.1	6.4	240	1.9
NOV											
27...	K8	K15	930	780	160	130	250	3.6	6.0	150	--
DEC											
18...	K7	44	830	600	150	110	300	4.5	5.9	230	--
JAN											
22...	< 1	K3	920	620	170	120	290	4.2	5.6	300	--
FEB											
13...	K4	39	990	620	180	130	290	4.0	5.7	370	--
MAR											
19...	K9	470	590	390	120	71	180	3.2	4.7	200	--
APR											
16...	K4	K4	830	590	150	110	280	4.2	5.7	240	--
MAY											
22...	100	21	800	550	140	110	320	4.9	7.8	250	--
29...	--	--	370	150	82	41	120	2.7	5.1	220	--
JUN											
18...	900	1300	340	130	73	38	89	2.1	3.8	210	--
JUL											
16...	K32	K35	560	310	100	75	240	4.4	5.8	250	--
AUG											
13...	32	K19	440	230	79	60	170	3.5	5.9	210	--
SEP											
16...	K10	K10	520	300	84	76	240	4.6	4.9	220	--

MUSSELSHELL RIVER BASIN

06130500 MUSSELSHELL RIVER AT MOSBY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT 23...	1000	26	.4	3.0	1850	1670	2.52	709	.06	.02	.09
NOV 27...	1200	28	.4	6.5	2060	1880	2.80	573	1.8	1.8	.01
DEC 18...	1100	28	.4	7.3	2120	1840	2.88	876	.29	.33	.02
JAN 22...	1100	30	.4	5.6	2000	1900	2.72	729	.41	.42	.03
FEB 13...	1100	26	.5	8.5	2050	1970	2.79	720	.47	.47	.06
MAR 19...	730	13	.3	5.5	1340	1250	1.82	1660	.23	.25	.12
APR 16...	1100	25	.5	2.6	1970	1820	2.68	1360	.02	.03	.03
MAY 22...	1100	26	.4	4.6	2060	1860	2.80	94.6	.02	.02	.15
29...	420	10	.4	6.5	830	81[illegible]	1.13	2470	.20	.12	.40
JUN 18...	300	8.1	.3	9.8	683	649	.93	1960	.11	.11	.05
JUL 16...	810	24	--	7.9	1560	1420	2.12	156	.11	.08	.03
AUG 13...	560	13	.4	6.1	1060	1020	1.44	529	--	--	--
SEP 16...	750	19	.4	3.2	1300	1310	1.77	435	.00	.00	.00

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHOPH OSPHATE TOTAL (MG/L AS P) (70507)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)
OCT 23...	.00	.84	.84	.93	.84	.02	.00	--	--	5.3	--
NOV 27...	.01	.64	.36	.65	.37	.02	.01	--	--	--	--
DEC 18...	.04	.55	.49	.57	.53	.02	.00	--	17	--	--
JAN 22...	.00	.41	.45	.44	.45	.01	.01	.01	9.8	--	--
FEB 13...	.06	.45	.41	.51	.47	.01	.00	--	--	6.0	.1
MAR 19...	.12	.88	.36	1.0	.48	.17	.01	--	8.4	--	--
APR 16...	.04	.58	.59	.61	.63	.03	.01	.01	13	--	--
MAY 22...	.11	.79	.69	.94	.80	.08	.00	--	--	11	1.1
29...	.34	7.9	.96	8.3	1.3	1.6	.01	--	--	8.9	.8
JUN 18...	.07	1.8	1.3	1.8	1.4	.54	.01	--	14	--	--
JUL 16...	.01	.89	1.4	.92	1.4	.08	.01	.01	6.4	--	--
AUG 13...	--	--	--	--	--	--	--	--	--	29	--
SEP 16...	.00	.69	.47	.69	.47	.02	.00	--	15	--	--

06130500 MUSSELSHELL RIVER AT MOSBY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
OCT 23...	1330	1	1	200	200	0	0	0	4	0
FEB 13...	1445	1	1	400	200	0	0	10	0	5
MAR 19...	1200	--	--	--	--	--	--	--	--	--
MAY 22...	1330	2	3	100	100	0	0	0	0	0
29...	1130	16	5	800	40	1	< 1	40	0	33
JUN 18...	1445	--	--	--	--	--	--	--	--	--
AUG 13...	1130	3	2	100	60	0	< 1	0	10	0
SEP 16...	1400	--	--	--	--	--	--	--	--	--

DATE	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
OCT 23...	0	5	0	170	10	1	0	40	20	.1
FEB 13...	0	5	1	150	50	0	4	50	40	.0
MAR 19...	--	--	--	--	--	--	--	--	--	--
MAY 22...	0	15	8	400	30	5	2	150	60	.0
29...	< 3	180	1	88000	20	65	0	2400	2	.1
JUN 18...	--	--	--	--	--	--	--	--	--	--
AUG 13...	< 3	9	4	660	< 10	4	1	40	8	.1
SEP 16...	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT 23...	.0	3	0	1	1	0	0	50	10
FEB 13...	.0	4	2	3	3	0	0	60	10
MAR 19...	--	--	--	--	--	0	--	--	--
MAY 22...	.0	7	3	2	2	0	0	40	20
29...	.0	83	3	3	1	1	0	370	4
JUN 18...	--	--	--	--	--	0	--	--	--
AUG 13...	.0	6	3	1	1	0	0	30	4
SEP 16...	--	--	--	--	--	0	--	--	--

MUSSELSHELL RIVER BASIN

06130500 MUSSELSHELL RIVER AT MOSBY, MT--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB TOTAL (UG/L) (39616)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)
NOV												
27...	1330	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39430)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	PARA-THION, TOTAL (UG/L) (39540)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	SILVEX, TOTAL (UG/L) (39760)
NOV												
27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2140	2180	2800	2370	2410	1850	2200	2410	923	1070	1550	1930
2	2120	2160	2790	2350	2450	1750	2250	2420	951	1140	1550	1950
3	2120	2140	2610	2370	2510	1710	2300	2450	1060	1240	1540	1990
4	2130	2140	2540	2420	2510	1670	2380	2530	1030	1240	1550	2040
5	2150	2150	2400	---	2450	1720	2430	2600	1020	1210	1600	2060
6	2140	2200	2360	---	2470	1720	2410	2680	1010	1220	1600	2080
7	2170	2210	2320	2410	2500	1530	2460	2770	1010	1180	1600	2130
8	2180	2220	2340	2470	2460	1620	2480	2880	1010	1220	1600	2150
9	2200	2200	2250	2530	2410	1670	2470	2980	1020	1280	1640	2170
10	2220	2140	2110	---	2410	1670	2430	3140	1020	1340	1620	2140
11	2220	2120	2250	---	2400	1680	2410	3090	1020	1480	1560	2050
12	2230	2120	2300	2610	2400	1730	2570	3030	1010	1580	1500	2030
13	2240	2140	2550	2680	2400	1770	2650	3200	1200	1730	1460	1880
14	2250	2160	2450	2650	2390	1810	2600	3170	1140	1700	1420	1920
15	2260	2140	---	2660	2380	1850	2470	3280	1100	2000	1470	1890
16	2270	2120	---	2610	2350	1790	2410	3200	1030	2020	1360	1790
17	---	2140	2550	2560	2230	1720	2430	2610	979	2080	1600	1750
18	2300	2160	2540	2520	2230	1730	2400	2160	970	2150	1670	1700
19	2300	2170	2530	2460	2210	1740	2400	2100	989	1890	1780	1660
20	2310	2200	2500	2470	2200	1750	2380	2160	1200	1550	1610	1650
21	2310	2350	2560	2480	2160	1740	---	2290	908	1530	1590	1620
22	2300	2350	2470	2460	2130	1730	2370	2460	802	1400	1590	1630
23	2250	2450	2500	2450	2110	1730	2380	2600	808	1420	1630	1700
24	2230	2420	2470	2390	2100	1850	2350	2700	837	1480	1650	1750
25	2200	2350	2420	2310	2100	1900	2350	2610	873	1530	1690	1800
26	2170	2330	2370	2300	2040	1950	2290	3660	842	1550	1770	1770
27	2140	2490	2380	2340	1910	2050	2290	2850	892	1570	1800	1840
28	2130	2590	2400	2340	1960	2080	2300	1710	945	1570	1830	1830
29	2130	2900	2400	2360	1800	2150	2300	1160	1020	1630	1850	1800
30	2210	2860	2420	2410	---	2100	2340	1120	1030	1640	1880	1800
31	2200	---	2450	2460	---	2140	---	924	---	1650	1950	---
MEAN	2210	2280	2450	2460	2280	1800	2400	2550	988	1530	1630	1880

WTR YR 1980 MEAN 2030 MAX 3660 MIN 802

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT											
23...	1330	9.0	142	20	7.7	--	--	--	--	--	90
NOV											
27...	1330	1.0	103	51	14	--	--	--	--	--	72
DEC											
18...	1345	1.0	153	116	48	--	--	--	--	--	59
JAN											
22...	1430	.5	135	75	27	--	--	--	--	--	88
FEB											
13...	1445	.5	130	52	18	--	--	--	--	--	98
MAR											
19...	1200	1.5	460	292	363	--	--	--	--	--	--
APR											
16...	1400	14.0	256	69	48	--	--	--	--	--	95
MAY											
22...	1330	25.0	17	71	3.3	--	--	--	--	--	91
26...	1430	16.0	240	7110	4610	87	97	100	--	--	100
29...	1130	17.0	1100	4330	12900	55	81	97	99	100	96
JUN											
18...	1445	23.0	1060	1240	3550	--	--	--	--	--	88
JUL											
16...	1100	20.0	37	106	11	--	--	--	--	--	97
AUG											
13...	1130	20.5	185	90	45	--	--	--	--	--	91
SEP											
16...	1400	14.5	124	50	17	--	--	--	--	--	94

PERIPHYTON ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
MAY							
22...	1330	36	9.06	8.35	.390	.000	1821

06130500 MUSSELSHELL RIVER AT MOSBY, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO JUNE 1980

DATE	APR 16,80	MAY 22,80	JUN 18,80
TIME	1400	1330	1445
TOTAL CELLS/ML	1300	23000	8000
DIVERSITY: DIVISION	0.7	1.4	1.3
.CLASS	0.7	1.6	1.3
..ORDER	1.6	1.9	1.6
...FAMILY	2.4	2.3	2.4
....GENUS	2.8	2.7	2.6

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...MICRACTINIACEAE						
....MICRACTINIUM	52	4	720	3	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	6500#	29	2100#	26
....DICTYOSPHAERIUM	--	-	1400	6	280	3
....FRANCEIA	--	-	180	1	--	-
....TREUBARIA	--	-	180	1	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	77	6	1100	5	830	10
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	13	1	180	1	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	180	1	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	480#	37	7700#	34	550	7
....MELOSIRA	--	-	180	1	--	-
....STEPHANODISCUS	140	11	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	690	9
...CYMBELLACEAE						
....CYMBELLA	90	7	--	-	--	-
...DIATOMACEAE						
....DIATOMA	39	3	--	-	--	-
...FRAGILARIACEAE						
....SYNEDRA	13	1	--	-	140	2
...NAVICULACEAE						
....ENTOMONEIS	26	2	--	-	--	-
....GYROSIGMA	13	1	--	-	--	-
....NAVICULA	26	2	--	-	140	2
...NITZSCHIACEAE						
....NITZSCHIA	280#	22	1100	5	2800#	34
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...CHROMULINACEAE						
....CHRYSOCOCCUS	--	-	180	1	--	-
...OCHROMONADACEAE						
....KEPHYRIOPSIS	--	-	540	2	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	13	1	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	26	2	2500	11	550	7

06130500 MUSSELSHELL RIVER AT MOSBY, MT--Continued

PHYTOPLANKTON ANALYSES, JULY 1980 TO SEPTEMBER 1980

DATE TIME	JUL 16,80 1100	AUG 13,80 1130	SEP 16,80 1400
TOTAL CELLS/ML	11000	3100	6300
DIVERSITY: DIVISION	1.3	1.0	1.6
.CLASS	1.3	1.0	1.6
..ORDER	1.6	1.7	2.2
...FAMILY	1.8	2.4	2.5
....GENUS	2.2	2.8	2.5

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	1400	13	250	8	200	3
....CHLORELLA	160	1	--	-	--	-
....OOCYSTIS	80	1	100	3	--	-
....SELENASTRUM	240	2	--	-	150	2
...SCENEDESMACEAE						
....SCENEDESMUS	800	7	200	6	100	2
....TETRASTRUM	--	-	100	3	--	-
..TETRASPORALES						
...COCCOMYXACEAE						
....ELAKATOTHRIX	--	-	--	-	100	2
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	80	1	--	-	100	2
....CHLOROGONIUM	--	-	--	-	50	1
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	5800#	54	1000#	33	3100#	50
....MELOSIRA	320	3	50	2	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	50	2	--	-
....COCCONEIS	--	-	50	2	--	-
...CYMBELLACEAE						
....CYMBELLA	--	-	--	-	100	2
...FRAGILARIACEAE						
....FRAGILARIA	--	-	100	3	--	-
...NAVICULACEAE						
....NAVICULA	--	-	150	5	250	4
...NITZSCHIACEAE						
....NITZSCHIA	640	6	960#	30	500	8
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	--	-	50	1
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	25	1	100	2
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	1200	11	75	2	1100#	17
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....TRACHELOMONAS	--	-	--	-	400	6

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06130935 CROW ROCK CREEK NEAR COHAGEN, MT

LOCATION.--Lat 47°03'45", long 106°14'11", in SE¼SE¼ sec.11, T.15 N., R.23 E., Garfield County, Hydrologic Unit 10040106, on county road 2.6 mi (4.2 km) upstream from mouth, and 16.5 mi (26.6 km) north of Rock Springs.

DRAINAGE AREA.--213 mi^2 (550 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
JUN 17...	1115	11	1830	7.9	24.5	21.5	3.4	42	480	860

DATE	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)
JUN 17...	260	120	46	36	320	9.7	11	170	0	140

DATE	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)
JUN 17...	3.4	770	5.2	.2	8.8	1350	1280	1.84	40.1

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)
JUN 17...	.13	.11	.05	1.4	1.4	.14	.03	2.0	1.4

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
JUN 17...	1115	10	4	3	100	60	0	< 1	320	0	< 1	0

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
JUN 17...	0	1	< 3	11	< 10	110	4	0	20	15	90	30

06130935 CROW ROCK CREEK NEAR COHAGEN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUN 17...	.6	.1	1	< 10	10	0	0	0	460	< 6.0	80	< 3

DATE	TIME	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS) (01003)	BARIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS BA) (01008)	BERYL-LIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01013)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD) (01028)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01029)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO) (01038)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU) (01043)
JUN 17...	1115	7	100	4	1	7	10	16

DATE	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB) (01052)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01053)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/G AS HG) (71921)	MOLYB-DENUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G) (01063)	NICKEL, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS NI) (01068)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G) (01148)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN) (01093)
JUN 17...	20	290	.03	1	20	0	30

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
JUN 17...	1115	< 17	< 12	7.4	5.0	10	8.1	10	7.7

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
MAR 19...	0815	.0	.004	12	.00
JUN 17...	1115	21.5	11	147	4.4

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
JUN 17...	1115	69	87	99	100

06130935 CROW ROCK CREEK NEAR COHAGEN, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO JUNE 1980

DATE	JUN 17,80
TIME	1115
TOTAL CELLS/ML	1700
DIVERSITY: DIVISION	1.2
.CLASS	1.2
..ORDER	1.3
...FAMILY	1.4
....GENUS	1.4

ORGANISM	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)		
.CHLOROPHYCEAE		
..CHLOROCOCCALES		
...OOCYSTACEAE		
....ANKISTRODESMUS	13	1
....OOCYSTIS	64	4
...SCENEDESMACEAE		
....TETRASTRUM	51	3
..VOLVOCALES		
...CHLAMYDOMONADACEAE		
....CHLAMYDOMONAS	13	1
CHRYSOPHYTA		
.BACILLARIOPHYCEAE		
..CENTRALES		
...COSCINODISCACEAE		
....CYCLOTELLA	26	1
..PENNALES		
...NAVICULACEAE		
....NAVICULA	26	1
...NITZSCHIACEAE		
....NITZSCHIA	39	2
CYANOPHYTA (BLUE-GREEN ALGAE)		
.CYANOPHYCEAE		
..HORMOGONALES		
...OSCILLATORIACEAE		
....OSCILLATORIA	1300#	75
EUGLENOPHYTA (EUGLENOIDS)		
.EUGLENOPHYCEAE		
..EUGLENALES		
...EUGLENACEAE		
....EUGLENA	210	12

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06130950 LITTLE DRY CREEK NEAR VAN NORMAN, MT

LOCATION.--Lat 47°20'22", long 106°21'47", in NE¼NE¼ sec.9, T.18 N., R.42 E., Garfield County, Hydrologic Unit 10040106, at bridge on State Highway 200, 1.5 mi (2.4 km) southeast of Van Norman.

DRAINAGE AREA.--1,224 mi^2 (3,170 km^2).

PERIOD OF RECORD.--Crest-stage gage record available May 1958 to September 1975. Nonrecording gage record March 1980 to September 1980 (station discontinued).

GAGE.--Nonrecording gage. Crest-stage gage installed May 5, 1958. Altitude of gage is 2,350 ft (716 m), from topographic map.

REMARKS.--Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,200 ft^3/s (147 m^3/s) Aug. 21, 1974, gage height, 6.80 ft (2.073 m), from crest-stage gage datum; maximum gage height, 7.6 ft (2.32 m) Mar. 20, 1960 (backwater from ice); no flow during some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 50 ft^3/s (1.42 m^3/s) June 15, gage height observed, 2.35 ft (0.716 m); minimum daily, 0.05 ft^3/s (0.001 m^3/s) Aug. 2,3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	9.5	2.5	.56	.60	.10	.30
2						---	9.5	2.5	.74	.70	.05	.35
3						---	9.0	2.5	.74	.65	.05	.35
4						---	8.4	2.4	.74	.60	.30	.35
5						---	8.5	2.4	.74	.55	.25	.40
6						---	8.5	2.4	.74	.50	.20	.35
7						---	8.5	2.2	.74	.40	.25	.35
8						---	8.5	2.2	.74	.40	.25	.35
9						---	8.5	2.2	.42	.40	.50	.35
10						---	8.4	2.2	.31	.40	.50	.40
11						---	8.4	1.9	.31	.35	.50	.45
12						---	7.1	1.9	1.6	.35	.45	.65
13						---	6.0	1.9	15	.35	.45	.80
14						---	5.2	1.9	3.2	.30	.40	.80
15						---	4.8	1.4	50	.30	.40	.80
16						---	4.5	1.4	31	.25	.40	.90
17						---	4.8	1.4	29	.20	.40	1.0
18						---	4.5	1.2	19	.25	.45	1.1
19						---	4.5	1.2	6.0	.30	.45	1.2
20						---	4.5	1.2	6.6	.25	.45	1.2
21						---	4.5	1.2	3.5	.30	.35	1.2
22						---	4.3	1.2	2.2	.30	.35	1.2
23						---	4.0	1.2	2.0	.25	.35	1.2
24						---	3.5	.93	1.5	.20	.35	1.2
25						24	3.0	.93	1.0	.15	.35	1.1
26						20	3.0	.56	1.0	.15	.35	1.0
27						20	3.0	.31	1.0	.15	.35	1.0
28						15	3.0	.31	.90	.10	.31	.90
29						11	3.0	.21	.80	.08	.30	.80
30						10	3.0	.13	.70	.10	.30	.80
31						10	---	.13	---	.10	.30	---
TOTAL						---	175.9	46.01	182.78	9.98	10.46	22.85
MEAN						---	5.86	1.48	6.09	.32	.34	.76
MAX						---	9.5	2.5	50	.70	.50	1.2
MIN						---	3.0	.13	.31	.08	.05	.30
AC-FT						---	349	91	363	20	21	45

06131000 BIG DRY CREEK NEAR VAN NORMAN, MT

LOCATION.--Lat 47°20'58", long 106°21'26", in NW¼SE¼NW¼ sec.3, T.18 N., R.42 E., Garfield County, Hydrologic Unit 10040105, on left bank 900 ft (270 m) downstream from Little Dry Creek, 3.2 mi (5.1 km) northeast of Van Norman Post Office, 26 mi (42 km) east of Jordan, and at mile 55.1 (88.7 km).

DRAINAGE AREA.--2,554 mi^2 (6,615 km^2).

PERIOD OF RECORD.--October 1939 to July 1969, July 1970 to current year (discharge measurements only, October 1947 to March 1949). Prior to July 1970, published as "Dry Creek near Van Norman".

REVISED RECORDS.--WSP 1309: 1947(M). WSP 1559: 1944(M), 1947. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,330 ft (710 m), by barometer. Prior to July 24, 1978, at site 400 ft (120 m) upstream at same datum.

REMARKS.--Records good except those for winter period, which are poor. Few small diversions for irrigation of hay meadows above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--37 years (1939-47, 1949-68, 1970-80), 58.8 ft^3/s (1.665 m^3/s), 42,600 acre-ft/yr (52.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,600 ft^3/s (697 m^3/s) Mar. 21, 1947, gage height, 13.39 ft (4.081 m); maximum gage height, 15.26 ft (4.651 m) Mar. 21, 1947 (ice jam); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined, but occurred on Mar. 17 (ice jam), no peaks above base of 400 ft^3/s (11.3 m^3/s); maximum gage height, undetermined; minimum daily discharge, 0.10 ft^3/s (0.003 m^3/s) on several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	6.6	4.0	3.5	.50	8.5	18	3.3	1.3	1.6	.47	.60
2	4.2	6.6	4.0	3.5	.20	8.5	14	3.0	1.3	1.8	.41	.67
3	4.2	6.6	4.5	3.0	.20	8.5	14	3.0	2.0	1.8	.41	.67
4	4.2	6.2	5.0	2.5	.50	8.5	14	3.0	2.0	1.6	.82	.67
5	4.2	6.2	3.0	2.0	.50	10	14	3.3	1.6	1.5	.74	.74
6	4.2	5.8	2.5	1.0	.50	20	15	3.0	1.8	1.3	.60	.67
7	4.2	6.2	1.5	1.5	.50	15	14	2.8	3.6	.98	.67	.67
8	4.2	6.0	2.5	1.0	.40	15	12	2.8	2.8	.98	.67	.67
9	4.2	6.0	4.0	.50	.40	20	11	2.5	2.0	.98	.98	.67
10	4.2	5.8	3.0	.40	.40	15	12	2.8	1.8	.98	.98	.67
11	4.6	6.2	3.0	.30	.30	20	12	2.8	3.0	.82	.98	.74
12	4.6	6.0	2.5	.10	.20	20	10	2.8	3.3	.74	.90	.98
13	4.6	5.5	3.0	.50	.20	25	9.7	2.8	26	.74	.90	1.1
14	5.0	5.5	3.5	1.0	.20	50	9.2	2.8	8.1	.67	.82	1.1
15	5.0	6.0	2.5	1.5	.20	100	8.1	2.8	67	.67	.82	1.1
16	5.4	6.0	1.5	2.0	.10	110	7.6	2.8	48	.60	.82	1.1
17	5.4	6.2	2.0	1.5	.10	120	7.1	2.5	53	.60	.82	1.2
18	5.4	6.2	2.5	1.5	.10	90	5.8	2.3	28	.67	.90	1.2
19	5.8	6.0	3.0	1.0	.10	70	6.2	2.3	18	.74	.90	1.5
20	6.2	5.5	3.5	1.0	.50	60	5.8	2.0	16	.67	.90	1.5
21	6.2	5.0	3.0	.50	3.0	50	5.4	2.0	12	.74	.74	1.5
22	6.2	5.5	3.0	1.0	6.0	40	5.4	1.8	9.2	.74	.74	1.5
23	6.2	5.0	3.0	1.5	8.0	35	5.4	1.6	8.6	.67	.74	1.5
24	6.2	5.0	2.5	1.5	8.0	30	5.0	1.5	6.2	.60	.74	1.5
25	6.2	5.0	2.5	1.0	10	35	4.6	1.8	5.0	.53	.74	1.5
26	6.2	4.5	3.0	.50	9.0	30	4.2	1.5	3.9	.53	.74	1.3
27	6.6	4.0	2.5	.40	8.0	30	3.9	1.2	2.8	.53	.74	1.3
28	6.6	4.0	2.5	.30	8.5	25	3.6	1.1	2.3	.47	.67	1.2
29	6.6	3.5	2.5	.20	8.0	20	3.3	.98	2.0	.47	.67	.98
30	6.6	3.5	2.5	.50	---	20	3.6	.98	1.8	.47	.60	.98
31	6.6	---	3.0	1.0	---	18	---	1.2	---	.47	.60	---
TOTAL	164.2	166.1	91.0	37.70	74.60	1127.0	263.9	71.06	344.4	26.66	23.23	31.48
MEAN	5.30	5.54	2.94	1.22	2.57	36.4	8.80	2.29	11.5	.86	.75	1.05
MAX	6.6	6.6	5.0	3.5	10	120	18	3.3	67	1.8	.98	1.5
MIN	4.2	3.5	1.5	.10	.10	8.5	3.3	.98	1.3	.47	.41	.60
AC-FT	326	329	180	75	148	2240	523	141	683	53	46	62

CAL YR 1979 TOTAL 70198.90 MEAN 192 MAX 4000 MIN .30 AC-FT 139200
WTR YR 1980 TOTAL 2421.33 MEAN 6.62 MAX 120 MIN .10 AC-FT 4800

06131200 NELSON CREEK NEAR VAN NORMAN, MT

LOCATION.--Lat 47°32'08", long 106°09'11", in SW¼NW¼ sec.36, T.21 N., R.43 E., McCone County, Hydrologic Unit 10040104, on left bank at upstream side of bridge on State Highway 24, 1.5 mi (2.4 km) upstream from Fort Peck Lake, and 19 mi (30 km) northeast of Van Norman.

DRAINAGE AREA.--100 mi^2 (259 km^2).

PERIOD OF RECORD.--October 1975 to current year.

REVISED RECORDS.--WDR MT-79-1: 1978(M).

GAGE.--Water-stage recorder. Altitude of gage is 2,300 ft (701 m), from topographic map.

REMARKS.--Water-discharge excellent except those for periods of flow, which are poor. Diversions for irrigation of about 163 acres (660,000 m^2) above station of which about 158 acres (640,000 m^2) is flood irrigated. Some storage in stock ponds upstream.

AVERAGE DISCHARGE.--5 years, 2.80 ft^3/s (0.079 m^3/s), 2,030 acre-ft/yr (2.50 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,750 ft^3/s (49.6 m^3/s) July 4, 1978, gage height, 9.30 ft (2.835 m); no flow occurs during most years.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 5.0 ft^3/s (0.14 m^3/s) Mar. 20; maximum gage height, 3.40 ft (1.036 m), backwater from ice jam; no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.05	.70	.06	.04	.00	.00	.00
2	.00	.00	.00	.00	.00	.05	.62	.06	.03	.00	.00	.00
3	.00	.00	.00	.00	.00	.05	.50	.06	.04	.00	.00	.00
4	.00	.00	.00	.00	.00	.05	.44	.06	.05	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.35	.06	.04	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.33	.06	.03	.00	.00	.00
7	.01	.00	.00	.00	.00	.00	.24	.06	.06	.00	.00	.00
8	.01	.00	.00	.00	.00	.00	.28	.06	.05	.00	.00	.00
9	.01	.00	.00	.00	.00	.00	.35	.06	.04	.00	.00	.00
10	.02	.00	.00	.00	.00	.00	.35	.07	.02	.00	.00	.00
11	.02	.00	.00	.00	.00	.05	.62	.06	.00	.00	.00	.00
12	.02	.00	.00	.00	.00	.05	.66	.06	.03	.00	.00	.00
13	.02	.00	.00	.00	.00	.10	.66	.07	.07	.00	.00	.00
14	.02	.00	.00	.00	.00	.10	.54	.07	.05	.00	.00	.00
15	.02	.00	.00	.00	.00	1.0	.41	.07	.04	.00	.00	.00
16	.03	.00	.00	.00	.00	2.5	.35	.06	.03	.00	.00	.00
17	.02	.00	.00	.00	.00	3.3	.22	.06	.03	.00	.00	.00
18	.02	.00	.00	.00	.00	3.9	.20	.07	.01	.00	.00	.00
19	.02	.00	.00	.00	.00	3.7	.20	.06	.00	.00	.00	.00
20	.02	.00	.00	.00	.00	5.0	.16	.07	.00	.00	.00	.00
21	.02	.00	.00	.00	.00	4.5	.13	.06	.00	.00	.00	.00
22	.02	.00	.00	.00	.00	3.5	.10	.06	.00	.00	.00	.00
23	.02	.00	.00	.00	.00	2.4	.07	.05	.00	.00	.00	.00
24	.02	.00	.00	.00	.00	1.8	.06	.02	.00	.00	.00	.00
25	.02	.00	.00	.00	.00	2.2	.06	.03	.00	.00	.00	.00
26	.02	.00	.00	.00	.10	1.7	.06	.03	.00	.00	.00	.00
27	.02	.00	.00	.00	.10	1.1	.06	.04	.00	.00	.00	.00
28	.02	.00	.00	.00	.10	.90	.06	.04	.00	.00	.00	.00
29	.02	.00	.00	.00	.10	.70	.06	.04	.00	.00	.00	.00
30	.02	.00	.00	.00	---	.66	.06	.03	.00	.00	.00	.00
31	.02	---	.00	.00	---	.75	---	.05	---	.00	.00	---
TOTAL	.48	.00	.00	.00	.40	40.11	8.90	1.71	.66	.00	.00	.00
MEAN	.015	.000	.000	.000	.014	1.29	.30	.055	.022	.000	.000	.000
MAX	.03	.00	.00	.00	.10	5.0	.70	.07	.07	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.06	.02	.00	.00	.00	.00
AC-FT	1.0	.00	.00	.00	.8	80	18	3.4	1.3	.00	.00	.00

CAL YR 1979 TOTAL 1659.05 MEAN 4.55 MAX 351 MIN .00 AC-FT 3290
WTR YR 1980 TOTAL 52.26 MEAN .14 MAX 5.0 MIN .00 AC-FT 104

474050106524001 FORT PECK LAKE ABOVE HELL CREEK, NEAR JORDAN, MT

LOCATION.--Lat 47°40'50", long 106°52'40", in NW¼SW¼ sec.8, T.22 N., R.38 E., Garfield County, Hydrologic Unit 10040104, 0.5 mi (0.8 km) north of Peterson Point and 24.8 mi (39.9 km) north of Jordan.

PERIOD OF RECORD.--September 1979 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1980

DATE	TIME	SAMPLING DEPTH (M) (00098)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)
SEP , 1979						
23...	1030	.00	810	8.4	13.0	8.9
23...	1032	1.5	--	--	13.0	8.9
23...	1035	4.6	--	--	13.0	8.9
23...	1040	7.6	--	--	13.0	8.9
23...	1042	11.0	--	--	13.0	8.9
23...	1045	14.0	--	--	13.0	8.9
23...	1050	17.0	--	--	13.0	8.9
23...	1052	20.0	815	8.0	13.0	8.9
23...	1055	23.0	--	--	12.5	8.8
23...	1100	24.0	--	--	11.5	8.0
23...	1102	26.0	--	--	11.0	7.9
23...	1105	27.0	--	--	11.0	7.6
23...	1110	29.0	--	--	10.5	6.9
23...	1112	30.0	--	--	9.5	6.3
23...	1115	32.0	--	--	9.5	6.3
23...	1120	35.0	--	--	9.0	6.3
23...	1125	37.0	--	--	9.0	6.1
23...	1130	40.0	820	7.9	9.0	5.7
FEB , 1980						
26...	1300	.00	630	8.5	2.0	16.2
26...	1305	3.0	--	--	2.0	12.4
26...	1310	6.5	--	--	2.0	12.2
26...	1315	10.0	--	--	2.0	11.8
26...	1320	13.5	--	--	2.0	11.4
26...	1325	16.5	--	--	1.0	11.1
26...	1330	20.0	790	8.3	1.0	11.1
26...	1335	23.5	--	--	1.0	11.1
26...	1340	26.5	--	--	1.0	10.8
26...	1345	30.0	--	--	1.5	10.8
26...	1350	33.5	--	--	2.0	10.5
26...	1355	37.0	--	--	2.0	11.6
26...	1400	40.0	820	8.3	2.0	7.8
MAY , 1980						
21...	1200	.00	755	8.4	15.5	10.2
21...	1205	2.0	--	--	15.0	10.3
21...	1210	4.0	--	--	14.5	10.4
21...	1215	5.0	--	--	14.0	10.4
21...	1220	7.0	--	--	13.5	10.5
21...	1225	10.0	--	--	11.0	10.8
21...	1230	13.0	--	--	10.0	10.6
21...	1235	16.0	--	--	9.5	10.6
21...	1240	20.0	719	8.4	9.0	10.6
21...	1245	23.0	--	--	8.5	10.6
21...	1250	26.0	--	--	8.0	10.7
21...	1300	28.0	--	--	5.5	10.3
21...	1305	31.0	--	--	5.0	10.2
21...	1310	35.0	--	--	5.0	10.2
21...	1315	38.0	--	--	5.0	10.2
21...	1320	40.0	694	8.3	5.0	10.0
JUN , 1980						
25...	1030	.00	670	8.3	20.0	6.4
25...	1032	1.5	--	--	19.5	6.4
25...	1034	3.0	--	--	19.0	6.4
25...	1036	6.0	--	--	19.0	6.4
25...	1038	9.0	--	--	18.5	6.4
25...	1040	12.0	--	--	18.0	6.5
25...	1042	14.0	--	--	15.0	7.0
25...	1044	15.0	--	--	13.5	7.8
25...	1046	17.0	--	--	11.5	7.2
25...	1048	18.5	780	8.2	10.0	7.7
25...	1050	20.0	--	--	9.0	8.0
25...	1052	21.5	--	--	8.0	8.4
25...	1054	24.5	--	--	7.0	8.6
25...	1058	27.5	--	--	7.0	8.6
25...	1100	30.5	--	--	7.0	8.8
25...	1105	34.0	--	--	7.0	9.0
25...	1110	37.0	--	--	7.0	9.4
25...	1130	39.0	840	8.1	7.0	10.0

474050106524001 FORT PECK LAKE ABOVE HELL CREEK, NEAR JORDAN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1980

DATE	TIME	SAMPLING DEPTH (M) (00098)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)
JUL , 1980						
09...	1030	.00	610	8.5	22.0	7.9
09...	1032	1.5	--	--	21.5	7.3
09...	1035	3.0	--	--	21.0	6.5
09...	1040	6.0	--	--	20.0	5.8
09...	1042	9.0	--	--	17.0	5.8
09...	1045	13.0	--	--	15.0	6.0
09...	1050	15.0	--	--	15.0	6.0
09...	1052	18.5	690	8.4	14.0	6.0
09...	1055	21.5	--	--	11.5	6.4
09...	1100	24.5	--	--	10.0	6.6
09...	1105	27.5	--	--	10.0	6.6
09...	1110	30.5	--	--	9.0	6.7
09...	1115	34.0	--	--	9.0	6.7
09...	1120	39.5	710	8.1	9.0	6.8
09...	1130	40.0	--	--	8.5	6.8
AUG , 1980						
21...	1100	.00	710	8.3	19.0	8.5
21...	1102	1.5	--	--	19.0	8.5
21...	1105	3.0	--	--	19.0	8.4
21...	1110	6.0	--	--	19.0	8.4
21...	1112	9.0	--	--	18.5	8.4
21...	1115	12.0	--	--	18.5	8.3
21...	1120	15.0	--	--	18.5	8.1
21...	1122	18.0	630	8.0	18.0	7.9
21...	1125	20.0	--	--	16.0	7.0
21...	1130	23.0	--	--	13.0	7.3
21...	1135	26.0	--	--	12.0	7.2
21...	1140	29.0	--	--	11.0	7.0
21...	1145	32.0	--	--	10.0	6.9
21...	1150	35.0	--	--	10.0	6.5
21...	1200	38.5	780	7.8	10.0	6.4

475940106251001 FORT PECK LAKE NEAR FORT PECK DAM, NEAR FORT PECK, MT

LOCATION.--Lat 47°59'40", long 106°25'10", in SE¼NW¼ sec.22, T.26 N., R.41 E., Valley County, Hydrologic Unit 10040104, in old river channel 0.5 mi (0.8 km) south of Fort Peck Dam and 1.7 mi (2.7 km) southeast of Fort Peck.

Period of Record.--September 1979 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1980

DATE	TIME	SAM-PLING DEPTH (M) (00098)	SPEC-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)
SEP , 1979						
23...	1300	.00	820	8.4	12.5	9.0
23...	1302	1.5	--	--	12.5	9.0
23...	1305	3.0	--	--	12.0	8.9
23...	1310	6.1	--	--	12.0	8.9
23...	1315	12.0	--	--	12.0	8.8
23...	1320	18.0	--	--	12.0	8.8
23...	1325	24.0	--	--	12.0	8.8
23...	1330	30.0	800	8.4	12.0	8.8
23...	1335	37.0	--	--	12.0	8.8
23...	1340	40.0	--	--	12.0	8.4
23...	1345	43.0	--	--	10.0	7.7
23...	1350	49.0	--	--	9.0	7.3
23...	1355	55.0	--	--	8.5	7.2
23...	1400	61.0	820	8.1	8.0	7.2
FEB , 1980						
25...	1300	.00	782	8.1	1.0	12.4
25...	1305	3.5	--	--	1.0	12.5
25...	1310	10.0	--	--	1.0	12.5
25...	1315	16.5	--	--	1.0	12.5
25...	1320	23.0	--	--	1.0	12.4
25...	1325	30.0	795	8.3	1.0	12.4
25...	1330	37.0	--	--	1.0	12.4
25...	1335	40.0	--	--	1.5	12.2
25...	1340	43.0	--	--	2.0	11.7
25...	1345	50.0	--	--	2.0	11.8
25...	1350	53.0	--	--	2.0	11.6
25...	1355	57.0	--	--	2.0	11.4
25...	1400	60.0	798	8.3	2.0	1.8
MAY , 1980						
22...	1030	.00	812	8.4	13.0	10.6
22...	1032	1.5	--	--	12.5	10.6
22...	1035	3.5	--	--	12.0	10.6
22...	1040	5.5	--	--	11.5	10.8
22...	1042	10.0	--	--	11.0	11.0
22...	1045	13.5	--	--	10.0	11.2
22...	1050	16.5	--	--	9.5	11.4
22...	1052	23.5	--	--	8.5	11.6
22...	1055	30.0	812	8.5	6.0	12.2
22...	1100	36.5	--	--	5.5	12.2
22...	1105	43.5	--	--	5.0	12.3
22...	1110	50.0	--	--	5.0	12.4
22...	1115	52.5	800	8.3	5.0	12.0
22...	1120	56.5	--	--	5.0	12.4
22...	1130	60.0	--	--	5.0	12.2
JUN , 1980						
25...	1330	.00	760	8.5	18.5	7.8
25...	1332	1.5	--	--	17.0	8.0
25...	1335	3.0	--	--	16.5	8.3
25...	1340	4.5	--	--	16.0	8.5
25...	1342	7.5	--	--	15.5	8.5
25...	1345	10.5	--	--	15.0	8.6
25...	1350	17.0	--	--	14.0	9.0
25...	1352	23.0	--	--	13.0	9.3
25...	1355	29.0	760	8.4	11.0	9.7
25...	1400	35.0	--	--	10.0	10.2
25...	1405	38.5	--	--	9.0	10.6
25...	1410	41.5	--	--	8.5	10.9
25...	1415	44.5	--	--	8.0	11.0
25...	1420	50.0	--	--	7.5	11.4
25...	1425	57.0	--	--	7.0	11.6
25...	1430	60.0	800	8.3	7.0	11.5

475940106251001 FORT PECK LAKE NEAR FORT PECK DAM, NEAR FORT PECK, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1978 TO SEPTEMBER 1980

DATE	TIME	SAM-PLING DEPTH (M) (00098)	SPEC-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)
JUL , 1980						
09...	1330	.00	720	8.5	20.0	8.4
09...	1332	1.5	--	--	19.5	8.2
09...	1335	3.0	--	--	19.0	8.0
09...	1340	4.5	--	--	19.0	8.0
09...	1342	7.5	--	--	18.0	8.0
09...	1345	14.0	--	--	15.0	8.3
09...	1350	20.0	--	--	14.0	8.4
09...	1355	23.0	--	--	14.0	8.6
09...	1400	26.0	--	--	13.5	8.8
09...	1405	29.0	780	8.3	11.5	9.5
09...	1410	35.0	--	--	9.0	10.2
09...	1415	41.5	--	--	8.0	10.6
09...	1420	47.5	--	--	8.0	10.9
09...	1425	54.0	--	--	8.0	10.9
09...	1430	60.0	770	8.2	8.0	10.7
AUG , 1980						
22...	0900	.00	800	8.4	18.0	8.8
22...	0905	3.0	--	--	18.0	8.8
22...	0910	9.0	--	--	18.0	8.8
22...	0915	15.0	--	--	18.0	8.4
22...	0920	21.5	--	--	16.0	8.3
22...	0925	27.5	--	--	15.0	8.2
22...	0930	34.0	770	8.3	13.0	8.2
22...	0935	40.0	--	--	12.0	8.3
22...	0940	46.0	--	--	10.5	8.4
22...	0945	52.0	--	--	9.5	8.4
22...	0950	55.0	--	--	9.5	8.4
22...	0955	58.0	--	--	9.0	8.0
22...	1000	61.5	780	7.9	9.0	7.6

06131500 FORT PECK LAKE AT FORT PECK, MT

LOCATION.--Lat 48°00'26", long 106°23'49", in sec. 14, T.26 N., R.41 E., McCone County, Hydrologic Unit 10040104, in No. 4 emergency gate shaft of Fort Peck Dam on Missouri River at Fort Peck, 2 mi (3 km) downstream from Bear Creek, 9.5 mi (15.3 km) southwest of Nashua, 9.5 mi (15.3 km) upstream from Milk River and at mile 1,771.6 (2,850.5 km).

DRAINAGE AREA.--57,500 mi^2 (148,900 km^2).

PERIOD OF RECORD.--October 1937 to current year. (Monthend contents only, except October 1938 to September 1940, when elevations were included.) Monthend contents for October 1937 to August 1938, published only in WSP 1309. Daily elevations and contents for May to June 1964, published in WSP 1840-B. Prior to October 1970, published as "Fort Peck Reservoir." Daily elevations on file in Helena district office.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is referenced to National Geodetic Vertical Datum of 1929. Prior to May 1, 1941, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam completed in 1939; storage began in 1937. The following capacity figures are from capacity table effective July 1, 1973; see previous reports for superseded figures. Total capacity, 18,910,000 acre-ft (23.3 km^3) between elevation 2,095.00 ft (638.556 m), invert of lower ring gates, and 2,250.00 ft (685.800 m), top of 25 ft (7.6 m) gates. Elevation of spillway crest, 2,225.00 ft (678.180 m). Normal operating level, 17,930,000 acre-ft (22.1 km^3), elevation, 2,246.00 ft (684.458 m). Dead storage, 542,800 acre-ft (669 hm^3) below elevation 2,095.00 ft (638.556 m). Minimum operating level, 4,283,000 acre-ft (5.28 km^3), elevation, 2,160.00 ft (658.368 m), for on-site power generation. Figures given herein represent total contents; usable contents published in previous water-supply papers for October 1950 to September 1955. Water is used for navigation, recreation, flood control, and power generation. Elevations materially affected by wind.

COOPERATION.--Elevations and capacity table furnished by U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 19,310,000 acre-ft (23.8 km^3) July 15-17, 1975, (elevation, 2,251.6 ft or 686.29 m); minimum since first filling, 5,061,000 acre-ft (6.24 km^3) Jan. 25, 26, 1956 (elevation, 2,167.67 ft or 660.611 m), by capacity table used Mar. 1, 1940, to Dec. 31, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum contents at 2400, 17,130,000 acre-ft (21.1 km^3) Oct. 1, 2, elevation, 2,242.6 ft (683.54 m); minimum, 15,630,000 acre-ft (19.3 km^3) Mar. 22, elevation, 2,235.9 ft (681.50 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Elevation (feet)	Contents (acre-feet)	Change in Contents (acre-feet)
Sept. 30	2,242.7	17,150,000	---
Oct. 31	2,241.8	16,950,000	- 200,000
Nov. 30	2,241.0	16,760,000	- 190,000
Dec. 31	2,239.7	16,470,000	- 290,000
CAL YR 1979			- 890,000
Jan. 31	2,238.2	16,140,000	- 330,000
Feb. 29	2,236.7	15,810,000	- 330,000
Mar. 31	2,236.1	15,680,000	- 130,000
Apr. 30	2,236.8	15,830,000	+ 150,000
May 31	2,237.6	16,000,000	+ 170,000
June 30	2,241.6	16,900,000	+ 900,000
July 31	2,241.2	16,810,000	- 90,000
Aug. 31	2,239.4	16,400,000	- 410,000
Sept. 30	2,237.3	15,940,000	- 460,000
WTR YR 1980			-1,210,000

06132000 MISSOURI RIVER BELOW FORT PECK DAM, MT

LOCATION.--Lat 48°02'39", long 106°21'21", in NW¼ sec.6, T.26 N., R.42 E., McCone County, Hydrologic Unit 10060001, on right bank 2 mi (3 km) upstream from Milk River, 6 mi (10 km) south of Nashua, 8 mi (13 km) downstream from Fort Peck Dam, and at mile 1,763.5 (2,837.5 km).

DRAINAGE AREA.--57,556 mi^2 (149,070 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1934 to current year.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,018.00 ft (615.086 m) National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). Prior to Apr. 14, 1938, at site 0.7 mi (1.1 km) upstream at different datum; Apr. 14, 1938, to Sept. 30, 1963, at present site at datum 2.00 ft (0.610 m) higher, all water-stage recorders. Since Oct. 1, 1969, published discharge is determined by flowmeters at Fort Peck Dam.

REMARKS.--Flow completely regulated by Fort Peck Lake. Diversions for irrigation of about 880,400 acres (3,560 km^2) above station.

COOPERATION.--Records since Oct. 1, 1969, furnished by U.S. Army Corps of Engineers; 4 discharge measurements made and records reviewed by Geological Survey. Records for March 1934 to September 1969 collected and computed by Geological Survey.

AVERAGE DISCHARGE.--5 years (1934-39, prior to Fort Peck Lake reaching operational level), 6,347 ft^3/s (179.7 m^3/s), 4,598,000 acre-ft/yr (5.67 km^3/yr); 36 years (1943-80, after operational level in Fort Peck Lake was reached), 9,943 ft^3/s (281.6 m^3/s), 7,204,000 acre-ft/yr (8.88 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,000 ft^3/s (1,440 m^3/s) including 32,000 ft^3/s (906 m^3/s) inflow from spillway 1 mi (2 km) downstream from station, Aug. 8, 1946; maximum gage height observed, 12.30 ft (3.749 m) Mar. 10, 1936 (ice jam), site and datum then in use; maximum daily reverse flow, 400 ft^3/s (11.3 m^3/s) Mar. 29, 1943 (backwater from Milk River).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 14,600 ft^3/s (413 m^3/s) Feb. 14; minimum daily, 5,800 ft^3/s (164 m^3/s) Apr. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9400	7100	7900	11400	13100	11200	7000	6300	7200	13200	13100	13500
2	9500	7300	7000	12000	13000	12200	7000	6400	7000	13200	13300	13800
3	9500	7400	7900	11800	13000	12000	7400	6300	7300	12700	13000	13600
4	9200	7400	6700	10000	13300	12100	7400	6300	8000	12200	12900	12400
5	9000	7600	7100	10000	13800	11600	7500	7200	8400	12400	13100	13000
6	8800	7500	7100	10500	14200	11900	7500	7300	8200	13200	13100	11900
7	8800	7400	7000	10100	14000	12100	6600	7400	8000	13400	13800	11600
8	8700	7400	7100	10100	14100	12000	6500	7100	7900	14000	13000	12500
9	8900	7500	6400	10100	14000	11900	6600	7300	8800	11700	13400	11900
10	7800	7500	9300	10200	14100	12000	6300	7200	8200	13800	12500	11800
11	8000	7400	10100	10800	13900	11900	6000	7200	8700	14200	12500	11700
12	7000	7400	12100	11200	13700	12000	7100	7200	8700	13600	12500	11900
13	6900	7500	11900	11100	14300	12100	6700	7100	8700	13500	13100	11500
14	7200	7400	12000	12100	14600	11800	6400	7200	8800	13600	12800	12100
15	7000	7600	12200	11800	13800	12100	6900	7100	8200	13900	13200	11800
16	8000	7700	12000	12100	13700	12100	7000	7000	8600	13500	13000	11500
17	7300	7200	11800	11900	12100	12500	7000	7100	7900	13300	13200	12100
18	7700	7200	11800	12000	11900	12400	6600	7100	7900	13400	13400	11800
19	7300	7900	11800	12000	11900	11700	6600	7100	8800	13100	13100	11900
20	7400	7700	11800	11900	12000	11700	6400	7100	8600	14000	13200	11700
21	7500	8500	11800	11800	12000	11700	6600	7000	9900	13700	13000	11800
22	7800	7600	11900	12200	12000	11100	6600	7100	10200	12800	12700	12100
23	7800	7700	11900	12900	12100	8800	6500	7500	11200	13000	13100	12400
24	6700	7500	12000	12900	11600	6700	6300	6300	12800	13100	13000	11800
25	6700	7500	11600	12800	12200	7400	6200	6800	13200	12900	13000	12000
26	6800	7400	12200	12900	11900	6800	6000	6800	13000	12900	12800	12600
27	8100	7500	12000	13100	12300	7100	6300	6900	13200	13000	13200	12300
28	8000	8200	11900	13100	12200	8200	6100	7200	12800	12900	13100	12500
29	7400	8000	11900	13000	11900	7900	5800	6900	12500	13000	13500	12200
30	7100	7300	12000	12900	---	7200	6000	7100	13500	13500	13500	12300
31	7200	---	11800	13100	---	8000	---	7100	---	13100	13100	---
TOTAL	244500	226300	322000	363800	376700	330200	198900	216700	286200	409800	405200	366000
MEAN	7887	7543	10390	11740	12990	10650	6630	6990	9540	13220	13070	12200
MAX	9500	8500	12200	13100	14600	12500	7500	7500	13500	14200	13800	13800
MIN	6700	7100	6400	10000	11600	6700	5800	6300	7000	11700	12500	11500
AC-FT	485000	448900	638700	721600	747200	655000	394500	429800	567700	812800	803700	726000

CAL YR 1979 TOTAL 4587400 MEAN 12570 MAX 28900 MIN 1000 AC-FT 9099000
WTR YR 1980 TOTAL 3746300 MEAN 10240 MAX 14600 MIN 5800 AC-FT 7431000

06132000 MISSOURI RIVER BELOW FORT PECK DAM, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.

REMARKS.--Once-daily water temperatures are available in the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,080 micromhos Nov. 30, 1976; minimum daily, 520 micromhos June 29, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 878 micromhos Mar. 30; minimum daily, 777 micromhos Oct. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	COLOR (PLAT-INUM COBALT UNITS) (00080)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT												
25...	1200	6700	2	800	8.0	10.0	9.5	--	5.8	12.0	114	K2
NOV												
21...	1330	8500	0	820	8.4	.5	3.0	--	3.0	12.8	98	K8
DEC												
11...	1100	10100	71	830	8.3	-4.0	.0	--	3.2	12.2	87	K9
JAN												
10...	1400	10200	1	784	8.3	.0	1.0	--	2.7	12.4	95	K3
MAR												
04...	1400	12100	0	850	8.6	-15.0	1.5	--	.90	13.6	103	< 1
20...	1030	11700	0	830	8.0	4.0	3.0	--	2.4	12.4	96	< 1
APR												
10...	1300	6300	52	845	8.5	6.0	4.0	5	1.2	12.8	105	< 1
MAY												
22...	1300	7100	0	830	8.4	31.0	11.0	5	1.8	10.2	99	K3
JUN												
19...	1400	8800	0	780	8.3	24.0	15.0	5	3.2	10.4	108	K27
JUL												
25...	1400	12900	0	810	8.4	23.0	13.0	5	2.0	10.0	99	K3
AUG												
25...	1430	13000	1	830	8.4	12.0	11.0	0	5.0	10.4	98	K2
SEP												
09...	1030	11600	0	820	8.3	19.0	10.5	0	1.6	7.8	72	K11

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT										
25...	43	250	100	58	26	70	1.9	4.7	150	250
NOV										
21...	K2	260	100	61	27	72	1.9	5.0	160	250
DEC										
11...	K2	250	92	58	26	67	1.8	4.2	160	220
JAN										
10...	K11	250	100	59	25	71	2.0	4.4	150	240
MAR										
04...	< 1	260	99	61	26	68	1.8	4.1	160	240
20...	K2	260	110	60	26	67	1.8	4.2	150	250
APR										
10...	K21	270	120	62	27	70	1.9	4.2	150	260
MAY										
22...	K8	270	120	63	27	71	1.9	4.3	150	240
JUN										
19...	K15	260	89	61	26	64	1.7	4.4	170	220
JUL										
25...	K3	260	94	63	26	68	1.8	4.2	170	230
AUG										
25...	< 1	260	99	61	26	65	1.8	4.1	130	230
SEP										
09...	K5	260	97	60	26	63	1.7	4.6	150	230

06132000 MISSOURI RIVER BELOW FORT PECK DAM, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)
OCT											
25...	10	.7	7.6	499	518	.68	9030	.16	.22	--	.67
NOV											
21...	8.5	.7	7.0	543	528	.74	12500	.05	.06	.02	.02
DEC											
11...	8.3	.7	6.9	533	488	.72	14500	.10	.09	.06	.05
JAN											
10...	8.5	.6	7.1	530	506	.72	14600	.09	.08	.01	.07
MAR											
04...	8.5	.6	6.9	525	512	.71	17200	.03	.05	.00	.01
20...	8.5	.7	6.3	549	513	.75	17300	.04	.05	.02	.04
APR											
10...	13	.7	6.5	560	534	.76	9530	.03	.03	--	.34
MAY											
22...	8.8	.5	6.7	536	512	.73	10300	.02	.05	.10	.10
JUN											
19...	7.7	.7	6.3	514	492	.70	12200	.05	.03	.07	.06
JUL											
25...	8.8	.8	7.0	510	510	.69	17800	.00	.00	.01	.00
AUG											
25...	8.7	.7	7.3	485	499	.66	17000	.03	.00	.03	.00
SEP											
09...	8.8	.7	7.4	501	497	.68	15700	.05	.02	.00	.03

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N) (00607)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHOPHOSPHATE TOTAL (MG/L AS P) (70507)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)
OCT										
25...	--	.05	1.7	.72	.03	.01	--	3.6	--	--
NOV										
21...	.38	.30	.40	.32	.01	.00	--	--	5.4	.1
DEC										
11...	1.0	.65	1.1	.70	.00	.01	--	8.0	--	--
JAN										
10...	.88	.76	.89	.83	.01	.01	--	5.8	--	--
MAR										
04...	.30	.24	.30	.25	.00	.00	--	--	9.5	.5
20...	1.3	1.1	1.3	1.1	.02	.02	--	6.1	--	--
APR										
10...	--	.25	.63	.59	.01	.02	.01	6.2	--	--
MAY										
22...	.29	.29	.39	.39	.01	.01	.00	5.8	--	.1
JUN										
19...	.10	.15	.17	.21	.05	.01	.04	5.3	--	--
JUL										
25...	.31	.26	.32	.26	.00	.03	.00	2.8	--	--
AUC										
25...	.43	.35	.46	.35	.01	.01	.01	--	4.1	.2
SEP										
09...	.41	.28	.41	.31	.01	.00	.00	--	--	--

06132000 MISSOURI RIVER BELOW FORT PECK DAM, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
NOV 21...	1330	4	6	200	50	0	< 1	20	20	0
DEC 11...	1100	--	--	--	--	--	--	--	--	--
MAR 04...	1400	4	5	200	40	1	0	0	10	6
20...	1030	--	--	--	--	--	--	--	--	--
MAY 22...	1300	3	3	100	40	3	3	100	10	0
JUN 19...	1400	--	--	--	--	--	--	--	--	--
AUG 25...	1430	4	4	200	40	1	2	0	10	1
SEP 09...	1030	--	--	--	--	--	--	--	--	--

DATE	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
NOV 21...	< 3	0	0	150	20	4	0	10	10	.1
DEC 11...	--	--	--	--	--	--	--	--	--	--
MAR 04...	0	5	0	90	30	2	0	10	20	.0
20...	--	--	--	--	--	--	--	--	--	--
MAY 22...	< 3	47	15	160	10	14	0	20	9	.2
JUN 19...	--	--	--	--	--	--	--	--	--	--
AUG 25...	< 3	4	2	270	20	0	2	20	8	.3
SEP 09...	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV 21...	.1	5	5	1	0	0	0	50	30
DEC 11...	--	--	--	--	--	0	--	--	--
MAR 04...	.1	2	0	1	1	0	0	10	20
20...	--	--	--	--	--	2	--	--	--
MAY 22...	.0	3	4	1	1	0	0	180	20
JUN 19...	--	--	--	--	--	1	--	--	--
AUG 25...	.0	5	2	1	1	0	0	20	10
SEP 09...	--	--	--	--	--	0	--	--	--

06132000 MISSOURI RIVER BELOW FORT PECK DAM, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980 ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	799	815	829	789	800	820	829	800	786	812	840	831
2	800	815	821	784	790	821	820	792	780	819	833	823
3	801	815	830	789	785	829	825	799	781	815	833	831
4	800	818	821	784	789	829	839	790	782	820	833	826
5	800	815	830	789	787	820	825	790	788	811	826	820
6	798	815	828	789	785	823	815	792	780	815	833	829
7	800	815	824	794	790	820	823	790	780	818	840	831
8	798	820	829	789	790	822	820	795	780	815	833	829
9	801	820	834	784	800	820	829	790	780	813	840	820
10	800	820	828	784	790	828	830	795	781	815	829	821
11	800	820	830	789	790	831	820	795	780	819	833	822
12	808	818	832	794	795	845	820	795	785	812	840	830
13	806	820	832	789	788	830	815	789	782	811	833	818
14	800	820	782	789	800	826	821	789	785	818	826	820
15	803	818	831	789	800	830	815	795	780	820	829	829
16	798	820	819	794	788	829	819	789	780	820	837	820
17	798	834	828	789	800	840	815	790	782	821	826	819
18	808	820	828	784	800	833	810	789	786	820	830	818
19	777	815	828	794	800	838	810	789	780	815	826	818
20	800	820	832	794	790	848	810	790	780	815	824	820
21	798	820	---	789	795	832	810	788	781	815	833	826
22	808	815	830	794	800	831	805	790	780	820	826	820
23	798	820	828	789	792	830	800	790	780	820	827	789
24	803	823	828	789	792	843	800	790	778	815	834	821
25	800	820	829	784	800	850	800	788	780	810	830	820
26	798	823	830	789	792	830	800	790	778	812	826	819
27	798	817	836	800	800	830	800	789	780	820	830	818
28	802	820	828	784	792	825	795	780	779	812	833	820
29	798	820	828	784	800	830	790	788	780	815	833	818
30	798	820	829	789	---	878	800	788	780	811	833	820
31	801	---	829	789	---	833	---	782	---	810	837	---
MEAN	800	819	827	789	794	832	814	791	781	816	832	822

WTR YR 1980 MEAN 810 MAX 878 MIN 777

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
25...	1200	9.5	6700	21	380	95
NOV						
21...	1330	3.0	8500	7	161	78
JAN						
10...	1400	1.0	10200	19	523	--
MAR						
04...	1400	1.5	12100	17	555	--
20...	1030	3.0	11700	14	442	83
APR						
10...	1300	4.0	6300	11	187	37
MAY						
22...	1300	11.0	7100	12	230	61
JUN						
19...	1400	15.0	8800	31	737	94
JUL						
25...	1400	13.0	12900	20	697	94
AUG						
25...	1430	11.0	13000	42	1470	94
SEP						
09...	1030	10.5	11600	18	564	96

06132000 MISSOURI RIVER BELOW FORT PECK DAM, MT--Continued

PERIPHYTON ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
JUN							
19...	1400	28	8.11	5.75	4.51	.240	523

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	NOV 21,79		MAR 20,80		MAY 22,80		JUL 25,80		AUG 25,80		SEP 9,80	
TIME	1330		1030		1300		1400		1430		1030	
TOTAL CELLS/ML	39		1200		90		140		280		360	
DIVERSITY: DIVISION	0.0		0.1		0.6		1.1		0.7		0.4	
.CLASS	0.0		0.1		0.6		1.1		0.7		0.4	
..ORDER	0.9		0.1		1.1		1.7		1.4		1.0	
...FAMILY	1.6		0.7		2.5		2.9		2.3		1.2	
....GENUS	1.6		0.7		2.5		3.1		2.5		1.5	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	--	-	--	-	13	9	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	13	9	--	-	--	-
....TREUBARIA	--	-	--	-	13	14	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	--	-	--	-	--	-	--	-	--	-	13	4
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	13#	33	--	-	13	14	26#	18	26	9	13	4
....MELOSIRA	--	-	--	-	--	-	--	-	39	14	270#	75
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	--	-	--	-	13	9	13	5	13	4
....RHOICOSPHENIA	--	-	--	-	--	-	--	-	--	-	13	4
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	13	14	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	13#	33	26	2	--	-	13	9	--	-	13	4
...FRAGILARIACEAE												
....ASTERIONELLA	--	-	1100#	89	--	-	--	-	--	-	--	-
....FRAGILARIA	--	-	--	-	--	-	13	9	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	26	2	13	14	--	-	--	-	--	-
...NAVICULACEAE												
....NAVICULA	--	-	39	3	26#	29	13	9	39	14	--	-
...NITZSCHIACEAE												
....NITZSCHIA	13#	33	26	2	13	14	26#	18	120#	41	13	4
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	--	-	13	5	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONADALES												
...CRYPTOMONADACEAE												
....CRYPTOMONAS	--	-	--	-	--	-	--	-	13	5	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	--	-	--	-	--	-	26	9	13	4
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	--	-	--	-	--	-	13	9	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	13	1	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06132200 SOUTH FORK MILK RIVER NEAR BABB, MT

(International gaging station)

LOCATION.--Lat 48°45'14", long 113°10'00", in NE¼NW¼NW¼ sec.34, T.35 N., R.12 W., Glacier County, Hydrologic Unit 10050001, on right bank 300 ft (91 m) upstream from bridge on FAS 464 ("Duck Lake Road"), 14.4 mi (23.2 km) southeast of Babb, 15.2 mi (24.5 km) northwest of Browning, and at mile 17.3 (27.8 km).

DRAINAGE AREA.--68.6 mi² (177.7 km²).

PERIOD OF RECORD.--May 1961 to current season (seasonal records only).

GAGE.--Water-stage recorder. Datum of gage is 4,731.6 ft (1,442.19 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter period, which are poor. Many small diversions for irrigation above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft^3/s (340 m^3/s) June 8, 1964, gage height, 6.61 ft (2.015 m), from rating curve extended above 400 ft^3/s (11.3 m^3/s) on basis of slope-area measurement of peak flow at site 3 mi (5 km) downstream; maximum gage height, 6.78 ft (2.067 m) June 20, 1975 (backwater from bridge); no flow Aug. 23, 1973, June 28 to Aug. 14, 1977.

EXTREMES FOR CURRENT SEASON.--Peak discharges above base of 260 ft^3/s (7.36 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 15	0045	a*424	12.0	*5.12	1.561	May 26	1815	345	9.77	4.85	1.478

a--Backwater from ice.

Minimum discharge, 5.0 ft^3/s (0.14 m^3/s) July 31, Aug. 1, 2, gage height, 2.54 ft (0.774 m).

CORRECTION.--In MT-79-1, the mean daily values table was published on a water year basis instead of a seasonal year, thus omitting October 1979. The October values are as follows:

1.... 3.7 5.... 4.7 9.... 5.2 13.... 4.8 17.... 7.0 21.... 11 25.... 10 29.... 7.6
2.... 4.3 6.... 4.2 10.... 5.0 14.... 4.9 18.... 7.9 22.... 10 26.... 9.1 30.... 12
3.... 5.3 7.... 4.2 11.... 4.9 15.... 5.1 19.... 8.3 23.... 10 27.... 8.2 31.... 12
4.... 5.5 8.... 4.3 12.... 4.7 16.... 5.9 20.... 9.7 24.... 11 28.... 8.0

TOTAL 218.5 MEAN 7.05 MAX 12 MIN 3.7 AC-FT 433

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			18	12	158	82	27	5.3	11	11	14	
2			16	12	78	80	24	5.2	11	11	13	
3			13	11	59	146	22	6.5	11	12	13	
4			7.9	11	50	95	20	11	11	11	---	
5			8.3	12	44	65	20	13	10	10	---	
6			8.3	12	40	58	19	11	9.1	11	---	
7			8.3	12	37	67	17	10	8.2	10	---	
8			8.7	12	36	58	17	10	7.9	9.4	---	
9			8.7	13	35	49	16	21	8.5	10	---	
10			9.0	13	34	49	15	27	8.4	11	---	
11			9.4	14	32	47	14	22	8.6	12	---	
12			9.4	35	30	46	15	20	8.7	12	---	
13			9.4	80	27	124	18	27	13	14	---	
14			9.4	262	25	106	21	30	38	18	---	
15			9.4	401	25	68	20	28	45	21	---	
16			9.9	349	23	63	16	20	41	22	---	
17			9.9	240	22	53	15	15	28	21	---	
18			9.4	169	20	43	14	19	21	22	---	
19			9.8	140	19	37	15	50	19	21	---	
20			10	121	18	34	17	33	17	18	---	
21			10	108	17	31	17	22	15	16	---	
22			11	96	17	30	15	21	14	18	---	
23			11	85	53	31	12	20	13	18	---	
24			11	82	115	30	10	16	13	17	---	
25			11	95	117	28	9.5	14	13	16	---	
26			12	89	286	37	8.9	13	13	17	---	
27			12	71	222	72	8.5	13	13	17	---	
28			12	62	108	54	7.6	13	13	16	---	
29			12	56	73	38	6.7	13	12	16	---	
30			12	121	66	31	6.3	12	12	15	---	
31			12	---	100	---	5.7	11	---	14	---	
TOTAL			328.2	2796	1986	1752	469.2	552.0	466.4	467.4	---	
MEAN			10.6	93.2	64.1	58.4	15.1	17.8	15.5	15.1	---	
MAX			18	401	286	146	27	50	45	22	---	
MIN			7.9	11	17	28	5.7	5.2	7.9	9.4	---	
AC-FT			651	5550	3940	3480	931	1090	925	927	---	

THE SEASON MARCH TO OCTOBER AC-FT 17,490

06133000 MILK RIVER AT WESTERN CROSSING OF INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'27", long 112°32'42", in NE¼ sec.1, T.1, R.20 W., fourth meridian, in Alberta, Hydrologic Unit 10050001, on left bank 0.8 mi (1.3 km) north of international boundary, 22 mi (35 km) upstream from North Milk River, 23 mi (37 km) southwest of Milk River, Alberta, and at mile 656.4 (1,056.1 km), revised.

DRAINAGE AREA.--397 mi^2 (1,028 km^2).

PERIOD OF RECORD.--March 1931 to current season (seasonal records only). Prior to October 1961, published as South Fork Milk River near international boundary.

REVISED RECORDS.--WSP 1389: 1934(M), 1935, 1936(M), 1937, 1942(M), 1947-48(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,820 ft (1,160 m), from topographic map. Prior to Aug. 9, 1948, and Aug. 9, 1948, to Oct. 31, 1958, water-stage recorders at sites 0.4 mi (0.6 km) and 0.5 mi (0.8 km) downstream, respectively, at different datums.

REMARKS.--Records good except those for winter period, which are poor. Several small diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,930 ft^3/s (225 m^3/s) June 9, 1964, gage height, 9.77 ft (2.978 m); maximum gage height, 12.55 ft (3.825 m) Mar. 18, 1976 (backwater from ice jam); no flow at times.

EXTREMES FOR CURRENT SEASON.--Peak discharges above base of 430 ft^3/s (12.2 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 14	1300	ice jam		*5.91	1.801	May 27	1000	1,130	32.0	5.62	1.713
Apr. 14	1600	*1,280	36.3	5.58	1.701						

Minimum discharge, 0.18 ft^3/s (0.005 m^3/s) Aug. 8, gage height, 1.94 ft (0.591 m).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES
*

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		---	24	25	188	265	62	.63	13	14	30	
2		---	29	38	234	211	50	.34	11	14	28	
3		---	23	50	164	263	44	.33	11	13	25	
4		---	16	67	127	313	37	.58	9.3	13	24	
5		---	31	86	112	216	33	.62	8.2	14	---	
6		---	40	78	98	163	30	.41	7.6	14	---	
7		---	46	77	87	136	27	.32	6.8	13	---	
8		---	52	81	81	126	24	.25	6.2	12	---	
9		---	56	104	76	119	22	1.9	5.4	12	---	
10		---	58	100	70	110	20	6.0	4.9	11	---	
11		---	57	98	67	109	20	11	4.8	13	---	
12		---	53	109	63	114	19	20	4.5	13	---	
13		---	52	247	57	167	16	23	4.8	18	---	
14		---	52	576	50	390	16	24	7.7	17	---	
15		---	52	886	46	262	15	52	12	19	---	
16		---	52	861	42	197	15	39	40	23	---	
17		---	52	655	39	172	16	34	56	31	---	
18		---	52	505	35	127	16	27	52	36	---	
19		---	52	439	33	98	16	25	42	36	---	
20		---	51	371	30	80	15	22	32	35	---	
21		---	51	335	28	68	12	73	27	35	---	
22		---	51	313	27	60	11	51	24	34	---	
23		---	46	236	46	53	9.8	40	21	32	---	
24		---	27	194	91	49	9.7	36	20	31	---	
25		---	12	188	228	50	7.4	30	18	33	---	
26		---	11	209	584	63	5.4	25	17	34	---	
27		66	14	197	1030	73	3.7	21	17	34	---	
28		66	19	168	540	98	2.6	17	16	35	---	
29		66	14	147	268	109	1.9	14	16	33	---	
30		---	9.5	141	198	81	1.6	13	15	31	---	
31		---	11	---	196	---	.99	12	---	31	---	
TOTAL		---	1165.5	7581	4935	4342	579.09	620.39	530.2	734	---	
MEAN		---	37.6	253	159	145	18.7	20.0	17.7	23.7	---	
MAX		---	58	886	1030	390	62	73	56	36	---	
MIN		---	9.5	25	27	49	.99	.26	4.5	11	---	
AC-FT		---	2310	15040	9790	8610	1150	1230	1050	1460	---	

THE SEASON MARCH TO OCTOBER AC-FT 40,640

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06133500 NORTH FORK MILK RIVER ABOVE ST. MARY CANAL, NEAR BROWNING, MT

(International gaging station)

LOCATION.--Lat 48°58'15", long 113°03'19", in NE¼NW¼NE¼ sec.16, T.37 N., R.11 W., Glacier County, Hydrologic Unit 10050001, on left bank 1.7 mi (2.7 km) upstream from outlet of canal, 1.9 mi (3.1 km) south of International boundary, and 29 mi (47 km) north of Browning.

DRAINAGE AREA.--61.8 mi^2 (160.1 km^2).

PERIOD OF RECORD.--May 1911 to July 1912 and June to July 1918 (published as "near Browning"), May 1919 to current season (seasonal records only). Monthly discharge only for some periods published in WSP 1309. Records usually obtained at this station only when St. Mary Canal is in operation.

GAGE.--Water-stage recorder. Concrete control since 1936. Altitude of gage is 4,220 ft (1,290 m), from topographic map. Prior to June 20, 1921, nonrecording gages at several sites within 1 mi (2 km) of present site at different datums.

REMARKS.--Records good except those for winter period, which are poor. Many small diversions for irrigation above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,090 ft^3/s (87.5 m^3/s) May 8, 1967, gage height, 7.95 ft (2.423 m), from rating curve extended above 130 ft^3/s (3.68 m^3/s) on basis of slope-area measurements at gage heights 7.55 ft (2.301 m) and 7.95 ft (2.423 m); no flow Oct. 29, 1942.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 260 ft^3/s (7.36 m^3/s) May 26, gage height, 3.52 ft (1.073 m); minimum, 13 ft^3/s (0.37 m^3/s) Aug. 1, 2, gage height, 1.08 ft (0.329 m)

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			30	15	27	27	17	14	16	17	17	
2			26	15	23	31	17	14	16	17	16	
3			22	15	21	38	16	16	15	17	16	
4			20	16	21	26	16	17	15	17	18	
5			18	16	20	25	16	15	15	17	---	
6			17	16	20	25	16	15	14	17	---	
7			18	16	19	23	16	15	15	17	---	
8			18	17	19	21	15	15	16	17	---	
9			18	17	19	20	15	20	16	18	---	
10			17	17	19	21	16	18	15	18	---	
11			18	17	18	24	16	17	15	18	---	
12			18	19	18	31	16	18	16	17	---	
13			19	35	18	57	17	18	19	18	---	
14			19	52	18	29	16	17	28	18	---	
15			18	196	17	26	16	16	26	19	---	
16			18	130	17	26	16	15	23	18	---	
17			19	72	17	22	15	15	18	20	---	
18			19	57	17	20	16	17	18	19	---	
19			18	45	16	19	17	28	17	17	---	
20			17	40	16	19	18	18	17	17	---	
21			17	37	15	18	16	17	16	18	---	
22			17	31	16	18	15	18	16	20	---	
23			17	29	27	18	15	19	16	18	---	
24			18	29	36	17	15	16	16	18	---	
25			18	31	71	18	15	16	17	18	---	
26			18	27	185	21	15	16	16	19	---	
27			17	25	66	23	15	16	16	18	---	
28			17	24	36	18	15	15	16	18	---	
29			17	23	29	17	15	15	16	19	---	
30			17	35	29	17	14	16	17	18	---	
31			16	---	41	---	14	15	---	17	---	
TOTAL			576	1114	931	715	487	517	512	554	---	
MEAN			18.6	37.1	30.0	23.8	15.7	16.7	17.1	17.9	---	
MAX			30	196	185	57	18	28	28	20	---	
MIN			16	15	15	17	14	14	14	17	---	
AC-FT			1140	2210	1850	1420	966	1030	1020	1100	---	

THE SEASON MARCH TO OCTOBER AC-FT 10,720

06134000 NORTH MILK RIVER NEAR INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°01'19", long 112°58'16",in SW¼NE¼ sec.11, T.1, R.23 W., fourth meridian, in Alberta, Hydrologic Unit 10050001, on right bank 0.4 mi (0.6 km) upstream from highway bridge, 1.6 mi (2.6 km) north of international boundary, 2.8 mi (4.5 km) east of Whiskey Gap, Alberta, 11 mi (18 km) southeast of Kimball, Alberta, and at mile 49.9 (80.3 km).

DRAINAGE AREA.--91.8 mi^2 (237.8 km^2). Area at site used Apr. 12, 1930, to Aug. 15, 1962, 97.4 mi^2 (252.3 km^2).

PERIOD OF RECORD.--July 1909 to October 1912 (seasonal records only), January 1913 to October 1922, March 1923 to current season (seasonal records only). Records for November and December 1912, published in WSP 1309, have been found to be unreliable and should not be used. Published as "near Kimball, Alberta" 1913-16. Prior to February 1962, published as North Fork Milk River near international boundary.

REVISED RECORDS.--WSP 1309: 1909-13, 1915(M), 1920(M), 1937(M). WSP 1559: 1948(M). WSP 1729: 1944(M), drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 4,112.16 ft (1,253.386 m) above mean sea level (Geodetic Surveys of Canada datum). Prior to May 1913, nonrecording gage at site 2 mi (3 km) downstream at different datum. May 1, 1913, to Apr. 11, 1930, water-stage recorder 700 ft (213 m) downstream at different datum. Apr. 12, 1930, to Aug. 15, 1962, water-stage recorder 1,500 ft (457 m) downstream at different datum.

REMARKS.--Records good except those for winter period, which are poor. Several small diversions for irrigation above station. See schematic showing diversions from St. Mary River into North Fork Milk River.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,950 ft^3/s (83.5 m^3/s) June 17, 1948, gage height, 6.47 ft (1.972 m), site and datum then in use, from rating curve extended above 1,500 ft^3/s (42.5 m^3/s); no flow Mar. 1, 2, 1940.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 1,150 ft^3/s (32.6 m^3/s) May 26, gage height, 5.10 ft (1.554 m); minimum, 14 ft^3/s (0.40 m^3/s) Sept. 30, gage height, 1.46 ft (0.445 m).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		---	102	398	720	675	678	644	611	15	19	
2		---	71	419	712	686	688	642	606	15	18	
3		---	42	433	675	702	694	645	603	15	18	
4		---	28	440	623	670	689	647	606	15	18	
5		---	18	441	593	663	689	637	608	15	---	
6		---	16	472	589	657	696	636	607	16	---	
7		---	18	447	593	649	690	633	608	16	---	
8		---	21	420	609	641	692	629	610	15	---	
9		---	20	418	500	633	691	643	552	17	---	
10		---	22	375	307	632	690	631	502	17	---	
11		---	39	296	221	649	691	626	504	17	---	
12		---	44	286	213	687	688	624	443	17	---	
13		---	37	297	210	745	692	625	248	17	---	
14		---	29	334	207	683	690	625	121	17	---	
15		---	25	530	202	671	688	623	79	19	---	
16		---	60	361	201	670	681	619	55	19	---	
17		---	64	248	340	671	678	620	36	20	---	
18		---	112	226	522	676	675	628	32	19	---	
19		---	111	236	565	679	677	650	29	18	---	
20		---	106	269	566	677	676	627	25	18	---	
21		---	102	328	584	672	671	627	18	19	---	
22		---	163	461	604	671	667	626	16	22	---	
23		---	241	592	638	673	664	631	15	20	---	
24		---	226	655	653	679	659	620	15	19	---	
25		15	258	680	761	687	662	617	16	19	---	
26		28	293	683	995	697	658	617	16	20	---	
27		396	350	688	626	700	652	616	16	20	---	
28		427	424	692	563	673	656	614	15	19	---	
29		155	406	697	664	676	650	611	15	22	---	
30		---	399	717	689	676	648	612	15	22	---	
31		---	396	---	725	---	646	610	---	20	---	
TOTAL		---	4243	13539	16670	20220	20966	19455	7642	559	---	
MEAN		---	137	451	538	674	676	628	255	18.0	---	
MAX		---	424	717	995	745	696	650	611	22	---	
MIN		---	16	226	201	632	646	610	15	15	---	
AC-FT		---	8420	26850	33060	40110	41590	38590	15160	1110	---	

THE SEASON MARCH TO OCTOBER AC-FT 204,900

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06134500 MILK RIVER AT MILK RIVER, ALBERTA

(International gaging station)

LOCATION.--Lat 49°08'37", long 112°04'44", in NE¼ sec.21, T.2, R.16 W., fourth meridian, in Alberta, Hydrologic Unit 10050002, on right bank 5 ft (1.5 m) downstream from highway bridge at Milk River, Alberta, 22 mi (35 km) downstream from North Milk River, and at mile 613.4 (987.0 km).

DRAINAGE AREA.--1,036 mi^2 (2,683 km^2).

PERIOD OF RECORD.--June 1909 to October 1910 (no winter records), April 1911 to current year. Monthly discharge only for June 1909, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1912. WSP 1599: 1916, 1927(M), 1947(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,402.78 ft (1,037.167 m) above mean sea level (Geodetic Surveys of Canada datum). Prior to June 17, 1919, nonrecording gages, and June 17, 1919, to Nov. 2, 1921, water-stage recorder at several sites 300 ft (91 m) upstream at datum 0.61 ft (0.186 m) higher. Nov. 3, 1921, to Aug. 28, 1947, water-stage recorder at site 60 ft (18 m) upstream at present datum. Aug. 29, 1947, to Nov. 10, 1976, water-stage recorder located 700 ft (213 m) downstream on left bank at present datum.

REMARKS.--Records good except those for winter months, which are poor. Since 1917, flow increased during irrigation season by water from St. Mary Canal (station number 05018500). Several small diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

AVERAGE DISCHARGE.--64 years (1916-80), 327 ft^3/s (9.260 m^3/s), 236,900 acre-ft/yr (292 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,170 ft^3/s (260 m^3/s) June 21, 1975, gage height, 10.58 ft (3.225 m); maximum gage height, 11.45 ft (3.490 m) Mar. 21, 1978 (backwater from ice); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,140 ft^3/s (60.6 m^3/s) May 27, gage height, 5.54 ft (1.689 m); minimum daily, 2.5 ft^3/s (0.071 m^3/s) Jan. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	31	13	35	9.5	118	410	835	955	761	667	623
2	24	26	19	35	15	108	452	876	948	749	663	620
3	24	24	25	35	18	95	367	908	949	748	666	615
4	24	23	28	32	19	80	501	844	1030	741	684	610
5	23	22	30	28	19	64	756	757	966	736	677	611
6	24	22	32	21	19	50	724	699	881	735	667	610
7	24	22	33	18	19	49	763	671	818	729	662	612
8	24	21	35	14	19	89	650	658	793	730	660	613
9	23	23	36	11	19	117	620	662	777	721	688	606
10	23	26	35	7.8	19	157	630	599	770	723	683	533
11	22	28	33	5.7	19	155	564	443	768	722	659	480
12	25	30	30	9.5	18	149	474	343	802	723	661	468
13	25	32	28	19	16	144	491	312	836	733	660	409
14	26	33	26	18	12	149	624	299	1010	731	669	282
15	27	34	23	15	7.8	156	1250	285	1020	710	672	188
16	28	32	22	11	9.8	152	1340	277	906	704	682	137
17	29	27	24	8.2	15	144	1010	271	877	702	671	120
18	28	20	28	5.7	18	133	840	362	841	702	667	121
19	29	13	32	4.3	19	120	718	549	812	709	677	107
20	31	5.0	36	3.9	19	119	679	601	787	709	685	91
21	31	11	39	4.9	20	126	650	613	764	705	672	80
22	32	23	40	7.3	21	154	658	647	751	696	702	71
23	32	22	39	11	21	152	736	740	740	690	683	65
24	32	20	38	12	24	149	797	826	731	684	668	60
25	33	18	38	11	27	139	820	909	744	683	648	57
26	34	16	37	8.8	49	142	839	1320	788	686	645	55
27	33	13	37	6.7	90	145	843	1960	807	685	642	53
28	33	10	37	2.8	109	148	845	1460	782	678	635	51
29	33	8.0	36	2.5	127	151	842	1010	800	676	628	50
30	32	7.0	36	4.3	---	388	834	947	787	673	623	49
31	32	---	36	6.4	---	374	---	917	---	669	626	---
TOTAL	864	642.0	981	414.8	817.1	4416	21727	22600	25240	22043	20592	9047
MEAN	27.9	21.4	31.6	13.4	28.2	142	724	729	841	711	664	302
MAX	34	34	40	35	127	388	1340	1960	1030	761	702	623
MIN	22	5.0	13	2.5	7.8	49	367	271	731	669	623	49
AC-FT	1710	1270	1950	823	1620	8760	43100	44830	50060	43720	40840	17940

CAL YR 1979 TOTAL 125970.4 MEAN 345 MAX 1760 MIN 5.0 AC-FT 249900
WTR YR 1980 TOTAL 129383.9 MEAN 354 MAX 1960 MIN 2.5 AC-FT 256600

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06134850 MILK RIVER NEAR WRITING-ON-STONE PARK, ALBERTA

LOCATION.--Lat 49°05'18", long 111°32'05", in SW¼ sec.3, T.2, R.12 W., fourth meridian, in Alberta, Hydrologic Unit 10050002, on right bank at downstream side of bridge, approximately 4 mi (6 km) downstream from Writing-On-Stone Park, and 30 mi (48 km) east of Milk River, Alberta.

DRAINAGE AREA.--1,690 mi^2 (4,380 km^2).

PERIOD OF RECORD.--June 1978 to current season (seasonal records only).

GAGE.--Water-stage recorder. Altitude of gage is 2,970 ft (905 m), from topographic map.

REMARKS.--Records fair. Flow increased during irrigation season by water supplied from St. Mary Canal (station number 05018500). Several small diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded discharge, 3,350 ft^3/s (94.9 m^3/s) Aug. 23, 1978, gage height, 8.35 ft (2.545 m); minimum recorded, 26 ft^3/s (0.74 m^3/s) Oct. 5, 1979, gage height, 2.67 ft (0.814 m).

EXTREMES FOR CURRENT SEASON.--Maximum recorded discharge, 2,130 ft^3/s (60.3 m^3/s) May 28, gage height, 7.00 ft (2.134 m); minimum recorded, 36 ft^3/s (1.02 m^3/s) Oct. 12, gage height, 2.71 ft (0.826 m).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				---	908	1000	758	711	650	48	64	
2				---	952	1030	735	706	637	45	63	
3				---	1020	992	726	708	633	42	62	
4				---	937	1030	727	720	623	42	60	
5				---	838	1050	722	719	620	41	59	
6				---	756	954	719	698	622	41	---	
7				---	715	894	724	684	627	39	---	
8				---	697	849	727	677	624	38	---	
9				---	708	833	719	690	629	39	---	
10				---	687	828	714	697	615	39	---	
11				---	508	821	728	665	526	38	---	
12				---	388	847	733	641	489	37	---	
13				---	334	873	742	634	479	40	---	
14				---	321	930	756	669	426	42	---	
15				1520	315	1180	742	682	325	43	---	
16				---	308	1030	723	683	223	46	---	
17				---	301	946	739	682	168	47	---	
18				---	297	914	737	675	140	47	---	
19				---	422	871	750	696	134	49	---	
20				---	583	825	755	699	118	53	---	
21				---	615	799	760	698	104	59	---	
22				---	627	784	756	703	94	66	---	
23				---	718	781	746	719	85	65	---	
24				---	847	735	738	706	80	65	---	
25				---	998	734	742	688	72	63	---	
26				---	1170	787	745	682	65	66	---	
27				---	1780	806	739	674	61	68	---	
28				---	1810	780	733	661	57	63	---	
29				911	1210	768	722	660	54	68	---	
30				911	1030	784	716	649	51	67	---	
31				---	984	---	710	647	---	68	---	
TOTAL				---	23784	26455	22783	21223	10031	1574	---	
MEAN				---	767	882	735	685	334	50.8	---	
MAX				---	1810	1180	760	720	650	68	---	
MIN				---	297	734	710	634	51	37	---	
AC-FT				---	47180	52470	45190	42100	19900	3120	---	

THE SEASON MAY TO OCTOBER AC-FT 210,000

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06134950 MILK RIVER NEAR PENDANT d'OREILLE, ALBERTA

LOCATION.--Lat 49°07'25", long 110°52'15", in NW¼ sec.15, T.2, R.7 W., fourth meridian, in Alberta, Hydrologic Unit 10050002, on left bank, approximately 8 mi (13 km) southeast of Pendant d'Oreille gas plant, and 9 mi (14 km) south of Pendant d'Oreille.

DRAINAGE AREA.--2,330 mi^2 (6,030 km^2).

PERIOD OF RECORD.--June 1978 to current year (seasonal records only).

GAGE.--Water-stage recorder. Altitude of gage is 2,800 ft (850 m), from topographic map.

REMARKS.--Records fair. Flow increased during irrigation season by water supplied from St. Mary Canal (station number 05018500). Several small diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge recorded, 3,670 ft^3/s (104 m^3/s) Aug. 24, 1978, gage height, 7.68 ft (2.341 m); minimum recorded, 28 ft^3/s (0.79 m^3/s) Oct. 4, 1979, gage height, 2.85 ft (0.869 m).

EXTREMES FOR CURRENT SEASON.--Maximum discharge recorded, 1,820 ft^3/s (51.5 m^3/s) May 28, gage height, 6.72 ft (2.048 m); minimum daily, 41 ft^3/s (1.16 m^3/s) Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	AN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				---	820	956	764	626	643	56	75	
2				---	826	1010	745	624	656	55	74	
3				---	883	1050	720	627	645	55	65	
4				---	968	954	709	645	636	52	64	
5				---	866	1010	696	636	618	48	68	
6				---	737	986	685	648	623	46	---	
7				---	638	858	674	630	631	43	---	
8				---	601	816	684	620	623	41	---	
9				---	596	805	686	630	618	44	---	
10				---	592	784	656	666	635	45	---	
11				---	584	782	648	691	626	44	---	
12				---	474	772	655	676	531	43	---	
13				---	393	744	681	659	492	42	---	
14				---	314	768	690	666	503	44	---	
15				498	279	839	697	683	477	42	---	
16				1060	261	1110	659	682	347	43	---	
17				1390	243	928	639	663	257	46	---	
18				1180	234	811	662	676	200	50	---	
19				920	221	788	663	726	168	50	---	
20				790	271	761	674	688	151	48	---	
21				746	511	718	672	689	141	51	---	
22				704	532	703	677	695	132	66	---	
23				721	538	710	655	697	111	76	---	
24				767	689	688	628	719	100	74	---	
25				858	911	634	625	697	94	72	---	
26				881	818	688	620	684	86	73	---	
27				875	863	768	628	686	78	76	---	
28				884	1570	759	625	675	72	78	---	
29				867	1310	735	616	659	65	99	---	
30				863	929	735	610	647	61	83	---	
31				---	880	---	620	642	---	76	---	
TOTAL				---	20352	24670	20663	20652	11020	1761	---	
MEAN				---	657	822	667	666	367	56.8	---	
MAX				---	1570	1110	764	726	656	99	---	
MIN				---	221	634	610	620	61	41	---	
AC-FT				---	40370	48930	40990	40960	21860	3490	---	

THE SEASON MAY TO OCTOBER AC-FT 196,600

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06135000 MILK RIVER AT EASTERN CROSSING OF INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 48°59'05", long 110°28'15", in NE¼NW¼ sec.7, T.37 N., R.10 E., Hill County, Hydrologic Unit 10050002, on right bank 1.1 mi (1.8 km) south of international boundary, 6.5 mi (10.5 km) upstream from Lost River, 12.5 mi (20.1 km) northwest of Simpson, 29.5 mi (47.5 km) north of Rudyard, and at mile 484.1 (778.9 km), revised.

DRAINAGE AREA.--2,628 mi^2 (6,807 km^2).

PERIOD OF RECORD.--August 1909 to current year. No winter record. A few winter records were collected and are on file in the Helena district office. Monthly discharge only for April 1912, published in WSP 1309.

REVISED RECORDS.--WSP 1086: 1927, 1935. WSP 1559: 1920(M), 1922(M), 1926, 1928(M), 1929, 1930(M), 1932(M). WSP 1729: 1921-13, 1921-22, 1929(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,659.64 ft (810.658 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1970, water-stage recorder or nonrecording gages of several sites within 10.5 mi (16.9 km) upstream at different datum. Several observations of water temperature were made during the year and are available in files of Helena district office.

REMARKS.--Records fair except those for winter months, which are poor. Since 1917, flow increased during irrigation season by water from St. Mary Canal (station number 05018500). Small diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,700 ft^3/s (303 hm^3/s) Apr. 9, 1965, gage height, 9.53 ft (2.905 m), site and datum then in use, but may have been higher Mar. 28, 1952; maximum gage height, 13.65 ft (4.161 m), site and datum then in use Mar. 28, 1952 (backwater from ice); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge recorded, 2,090 ft^3/s (59.2 m^3/s) May 29, gage height, 6.67 ft (2.033 m); maximum gage height, 7.53 ft (2.295 m) Mar. 16 (backwater from ice); minimum daily discharge recorded, 33 ft^3/s (0.93 m^3/s) Oct. 14-18, but may have been less during the period the gage was out of operation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42					350	530	773	1050	700	598	630
2	39					300	618	766	979	707	598	631
3	35					250	611	845	1050	713	605	647
4	35					200	509	857	1030	767	621	637
5	35					140	615	816	958	778	602	625
6	35					80	589	770	1130	769	593	597
7	34					50	750	721	1020	739	612	611
8	34					40	684	646	898	705	601	625
9	34					40	690	626	897	692	599	625
10	34					44	721	628	850	687	603	633
11	34					50	621	624	820	662	631	640
12	34					59	554	607	810	653	641	640
13	34					79	521	511	800	645	640	550
14	33					100	434	465	830	684	614	505
15	33					109	437	413	860	692	615	556
16	33					119	701	358	940	708	627	530
17	33					140	1320	323	1140	676	634	398
18	33					164	1330	293	901	642	629	272
19	35					193	1020	269	909	667	677	194
20	37					230	906	247	882	668	735	155
21	38					270	747	273	804	659	709	137
22	39					333	707	591	763	654	695	135
23	40					416	681	707	787	663	718	132
24	40					492	661	876	804	663	726	117
25	40					530	733	1050	755	648	724	107
26	40					570	813	1010	804	646	686	98
27	40					543	830	1000	821	647	662	94
28	40					511	843	1550	731	636	647	86
29	40					511	832	1870	677	630	647	85
30	39					530	812	1300	684	607	637	80
31	39					530	---	1080	---	591	649	---
TOTAL	1131					7973	21820	22865	26384	20998	19975	11772
MEAN	36.5					257	727	738	879	677	644	392
MAX	42					570	1330	1870	1140	778	735	647
MIN	33					40	434	247	677	591	593	80
AC-FT	2240					15810	43280	45350	52330	41650	39620	23350

Wild Horse Lake closed basin

06135500 SAGE CREEK AT Q RANCH, NEAR WILD HORSE, ALBERTA

(International gaging station)

LOCATION.--Lat 49°06'29", long 110°13'23", in NW¼ sec.9, T.2, R.2 W., fourth meridian, in Alberta, Hydrologic Unit 10050003, on right bank 3.5 mi (5.6 km) north of Q Ranch buildings, 7.5 mi (12.1 km) north of Wild Horse Port of Entry, 12.5 mi (20.1 km) north of Simpson, Mt, and at mile 23.7 (38.1 km).

DRAINAGE AREA.--175 mi^2 (453 km^2).

PERIOD OF RECORD.--March 1935 to current season (seasonal records only). March 1935 to October 1950 monthly discharge only, published in WSP 1309. March to October 1951 monthly discharge only, published in WSP 1729.

GAGE.--Water-stage recorder. Altitude of gage is 2,900 ft (884 m), from topographic map. Prior to Sept. 24, 1935, nonrecording gage at site 2 mi (3 km) downstream at different datum. Sept. 24, 1935, to Oct. 31, 1951 water-stage recorder at site 100 ft (30 m) upstream at datum 0.15 ft (0.046 m) higher.

REMARKS.--Records poor.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,500 ft^3/s (99.1 m^3/s) Apr. 11, 1937, gage height, 15.87 ft (4.837 m), site and datum then in use, caused by failure of Elbow Coulee dam; no flow most of each season.

EXTREMES FOR CURRENT SEASON.--Maximum discharge recorded, 55 ft^3/s (1.56 m^3/s) Mar. 22, gage height, 5.30 ft (1.615 m), backwater from ice; no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	15	.00	.00	.00	.00	.00	.00		
2			.00	7.8	.00	.00	.00	.00	.00	.00		
3			.00	5.3	.00	.00	.00	.00	.00	.00		
4			.00	3.8	.00	.00	.00	.00	.00	.00		
5			.00	3.0	.00	.00	.00	.00	.00	.00		
6			.00	2.3	.00	.00	.00	.00	.00	.00		
7			.00	2.7	.00	.00	.00	.00	.00	.00		
8			.00	13	.00	.00	.00	.00	.00	.00		
9			.00	12	.00	.00	.00	.00	.00	.00		
10			.00	4.4	.00	.00	.00	.00	.00	.00		
11			.00	2.2	.00	.00	.00	.00	.00	.00		
12			.00	3.7	.00	.00	.00	.00	.00	.00		
13			.00	6.5	.00	.00	.00	.00	.00	.00		
14			.00	2.1	.00	.00	.00	.00	.00	.00		
15			.00	.70	.00	.00	.00	.00	.00	.00		
16			12	.31	.00	.00	.00	.00	.00	.00		
17			30	1.5	.00	.00	.00	.00	.00	.00		
18			46	1.4	.00	.00	.00	.00	.00	.00		
19			52	.56	.00	.00	.00	.00	.00	.00		
20			53	.30	.00	.00	.00	.00	.00	.00		
21			44	.08	.00	.00	.00	.00	.00	.00		
22			32	.00	.00	.00	.00	.00	.00	.00		
23			33	.00	.00	.00	.00	.00	.00	.00		
24			36	.00	.00	.00	.00	.00	.00	.00		
25			22	.00	.00	.00	.00	.00	.00	.00		
26			11	.00	.00	.00	.00	.00	.00	.00		
27			8.1	.00	.00	.00	.00	.00	.00	.00		
28			7.8	.00	.00	.00	.00	.00	.00	.00		
29			11	.00	.00	.00	.00	.00	.00	.00		
30			23	.00	.00	.00	.00	.00	.00	.00		
31			22	---	.00	---	.00	.00	---	.00		
TOTAL			442.90	88.65	.00	.00	.00	.00	.00	.00		
MEAN			14.3	2.96	.000	.000	.000	.000	.000	.000		
MAX			53	15	.00	.00	.00	.00	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			878	176	.00	.00	.00	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 1,050

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

Wild Horse Lake closed basin

06136000 SAGE CREEK AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'14", long 110°11'22", in SE¼ sec.3, T.1, R.2 W., fourth meridian, in Alberta, Hydrologic Unit 10050003, on right bank 0.3 mi (0.5 km) north of international boundary, 1.1 mi (1.8 km) east of Wild Horse Port of Entry, 5.2 mi (8.4 km) north of Simpson, Mt, and at mile 8.3 (13.4 km).

DRAINAGE AREA.--220 mi^2 (570 km^2).

PERIOD OF RECORD.--March 1946 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder and concrete low-water control. Altitude of gage is 2,800 ft (853 m), from international boundary map. Prior to Sept. 22, 1950, at site 0.5 mi (0.8 km) downstream at different datum.

REMARKS.--Records poor. Many diversions for irrigation above station. All of the flow may be diverted at times. During the spring, high-water natural overflow occurs at many points along channel above and below gage.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66 ft^3/s (1.87 m^3/s) Apr. 12, 1978, gage height, 4.44 ft (1.353 m), backwater from snow; maximum gage height, 5.12 ft (1.561 m) Apr. 11, 1978 (backwater from snow); no flow most of each season.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 20 ft^3/s (0.57 m^3/s) Apr. 1, gage height, 3.96 ft (1.207 m); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	17	.21	.00	.00	.00	.00	.00		
2			.00	17	.14	.00	.00	.00	.00	.00		
3			.00	11	.11	.00	.00	.00	.00	.00		
4			.00	8.3	.07	.00	.00	.00	.00	.00		
5			.00	4.8	.00	.00	.00	.00	.00	.00		
6			.00	3.6	.00	.00	.00	.00	.00	.00		
7			.00	3.2	.00	.00	.00	.00	.00	.00		
8			.00	3.0	.00	.00	.00	.00	.00	.00		
9			.00	3.3	.00	.00	.00	.00	.00	.00		
10			.00	6.2	.00	.00	.00	.00	.00	.00		
11			.00	6.1	.00	.00	.00	.00	.00	.00		
12			.00	3.8	.00	.00	.00	.00	.00	.00		
13			.00	2.4	.00	.00	.00	.00	.00	.00		
14			.00	2.3	.00	.00	.00	.00	.00	.00		
15			.00	4.4	.00	.00	.00	.00	.00	.00		
16			.00	2.5	.00	.00	.00	.00	.00	.00		
17			.00	2.0	.00	.00	.00	.00	.00	.00		
18			.00	1.4	.00	.00	.00	.00	.00	.00		
19			.00	1.1	.00	.00	.00	.00	.00	.00		
20			.00	1.6	.00	.00	.00	.00	.00	.00		
21			.00	1.9	.00	.00	.00	.00	.00	.00		
22			.00	1.6	.00	.00	.00	.00	.00	.00		
23			7.1	1.4	.00	.00	.00	.00	.00	.00		
24			13	1.2	.00	.00	.00	.00	.00	.00		
25			11	1.0	.00	.00	.00	.00	.00	.00		
26			16	.88	.00	.00	.00	.00	.00	.00		
27			16	.67	.00	.00	.00	.00	.00	.00		
28			13	.57	.00	.00	.00	.00	.00	.00		
29			13	.46	.00	.00	.00	.00	.00	.00		
30			10	.32	.00	.00	.00	.00	.00	.00		
31			15	---	.00	---	.00	.00	---	.00		
TOTAL			114.10	115.00	.53	.00	.00	.00	.00	.00		
MEAN			3.68	3.83	.017	.000	.000	.000	.000	.000		
MAX			16	17	.21	.00	.00	.00	.00	.00		
MIN			.00	.32	.00	.00	.00	.00	.00	.00		
AC-FT			226	228	1.1	.00	.00	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 455

06137570 BOXELDER CREEK NEAR ROCKY BOY, MT

LOCATION.--Lat 48°18'07", long 109°50'37", in SW¼SW¼NW¼ sec.6, T.29 N., R.14 E., Hill County, Hydrologic Unit 10050005, on right bank 1,000 ft (305 m) upstream from Bonneau Reservoir, 4,000 ft (1,219 m) downstream from Wolf Creek, 4.1 mi (6.6 km) northwest of Rocky Boy Agency, and at mile 14.0 (22.5 km).

DRAINAGE AREA.--48.2 mi^2 (124.8 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,225 ft (983 m), from topographic map.

REMARKS.--Water-discharge records good except those for the winter period and those for July 4 to Aug. 6 and Sept. 9-30, which are poor. Backwater from debris on control July 4 to Aug. 6 and backwater from beaver dams Sept. 9-30. No known regulation or diversions above station.

AVERAGE DISCHARGE.--5 years, 10.1 ft^3/s (0.286 m^3/s), 7,320 acre-ft/yr (9.03 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 243 ft^3/s (6.88 m^3/s) Mar. 26,1978, gage height, 6.86 ft (2.091 m), backwater from beaver dams; maximum gage height, 7.91 ft (2.411 m) Mar. 7, 1979 (backwater from ice); minimum discharge, 0.02 ft^3/s (0.001 m^3/s) Sept. 15, 1980, but may have been less during the period Sept. 9-23, backwater from beaver dams; minimum gage height, 3.79 ft (1.155 m) Sept. 17, 1976, present site and previous control datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29 ft^3/s (0.82 m^3/s) Apr. 15, gage height, 7.01 ft (2.137 m), no peak above base of 30 ft^3/s (0.85 m^3/s); maximum gage height, 7.85 ft (2.393 m) Feb. 27 (backwater from ice); minimum discharge, 0.02 ft^3/s (0.001 m^3/s) Sept. 15, 1980, but may have been less during the period Sept. 9-23, backwater from beaver dams.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	4.1	4.1	3.0	3.2	4.0	6.5	4.7	3.4	3.0	.06	.03
2	2.2	4.1	5.5	3.0	3.5	4.1	8.6	4.3	3.0	2.3	.06	.03
3	2.6	4.1	6.2	2.9	3.8	4.0	6.8	4.1	2.9	2.1	.05	.04
4	2.7	4.1	6.2	2.8	4.0	3.8	6.4	3.9	2.7	1.9	.05	.04
5	2.5	4.3	5.9	2.7	3.7	3.5	7.9	3.8	2.3	1.7	.05	.03
6	2.6	4.3	5.3	2.5	3.5	3.6	11	3.5	2.2	2.1	.04	.03
7	2.9	4.0	4.8	2.3	3.3	3.7	12	3.2	2.4	1.6	.04	.03
8	3.2	4.1	4.6	2.2	3.4	3.9	8.3	2.9	2.2	1.4	.05	.04
9	3.0	4.0	5.0	2.1	3.5	4.2	6.9	2.9	2.0	1.2	.06	.04
10	3.0	4.3	4.9	2.1	3.5	5.0	16	3.0	1.7	1.1	.09	.04
11	3.0	4.8	3.5	2.0	3.4	10	16	2.9	1.8	1.1	.09	.04
12	3.0	4.8	3.8	2.5	3.3	15	13	2.7	2.0	1.0	.10	.04
13	3.4	4.5	3.7	3.0	3.2	12	11	2.5	3.2	1.0	.12	.04
14	3.2	4.4	3.5	3.3	3.0	11	13	2.4	2.6	.90	.13	.04
15	3.2	4.5	3.2	3.5	3.1	10	22	2.4	2.2	.80	.13	.05
16	3.6	4.7	3.0	3.4	3.2	7.0	18	2.2	1.8	.50	.15	.08
17	4.0	4.9	3.7	3.3	3.2	6.5	14	2.1	1.5	.30	.15	.09
18	3.7	4.9	6.7	3.0	3.3	7.5	15	2.1	1.3	1.0	.15	.10
19	4.9	4.7	5.6	2.7	3.4	9.0	15	2.0	1.2	.80	.12	.10
20	7.9	4.1	4.7	2.9	3.5	8.6	13	1.7	1.2	.70	.10	.12
21	6.2	3.7	4.1	3.0	3.4	8.8	11	1.6	1.4	.70	.10	.13
22	5.0	3.9	4.0	3.0	3.3	7.6	11	1.5	1.1	1.1	.10	.15
23	4.6	3.9	3.7	3.2	3.5	8.4	9.1	1.5	2.0	.81	.13	.17
24	4.6	4.0	3.6	3.5	3.7	7.5	8.0	2.1	2.4	.17	.13	.20
25	4.3	4.1	3.6	3.3	4.0	6.1	7.2	8.7	1.8	.12	.17	.32
26	4.2	4.3	3.6	2.9	4.3	5.7	6.9	9.9	1.6	.12	.12	.36
27	4.0	4.0	3.2	2.5	4.5	6.2	6.6	6.8	8.4	.11	.07	.32
28	4.2	3.8	2.9	2.3	4.2	6.8	5.9	4.8	11	.10	.05	.28
29	4.0	4.0	3.0	2.2	4.0	7.0	5.6	3.7	5.8	.09	.04	.28
30	4.0	4.1	3.0	2.4	---	7.1	5.3	3.1	3.8	.08	.04	.28
31	4.1	---	3.0	2.8	---	6.4	---	3.8	---	.07	.03	---
TOTAL	115.9	127.5	131.6	86.3	102.9	214.0	317.0	106.8	82.9	29.97	2.77	3.54
MEAN	3.74	4.25	4.25	2.78	3.55	6.90	10.6	3.45	2.76	.97	.089	.12
MAX	7.9	4.9	6.7	3.5	4.5	15	22	9.9	11	3.0	.17	.36
MIN	2.1	3.7	2.9	2.0	3.0	3.5	5.3	1.5	1.1	.07	.03	.03
AC-FT	230	253	261	171	204	424	629	212	164	59	5.5	7.0

CAL YR 1979 TOTAL 5336.40 MEAN 14.6 MAX 86 MIN 1.6 AC-FT 10580
WTR YR 1980 TOTAL 1321.18 MEAN 3.61 MAX 22 MIN .03 AC-FT 2620

06137570 BOXELDER CREEK NEAR ROCKY BOY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 30...	0830	4.0	1	592	8.1	-2.0	3.5	10.5	88	26	33
MAR 11...	1600	14	1	475	8.3	8.0	.0	12.0	93	40	> 800
MAY 22...	0945	1.5	1	559	8.2	22.0	16.5	6.4	73	38	85
JUL 22...	1545	1.0	0	596	8.3	35.0	22.0	7.1	90	150	150

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT 30...	190	0	45	20	53	1.7	5.9	300	24	2.9
MAR 11...	140	0	31	16	52	1.9	7.2	220	31	3.1
MAY 22...	190	0	45	19	54	1.7	6.2	280	16	2.3
JUL 22...	190	0	45	20	63	2.0	7.3	310	7.7	2.1

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)
OCT 30...	.3	24	356	.48	3.84	.03	.01	.78	.79	.09
MAR 11...	.2	20	293	.40	11.1	.16	.14	1.1	1.2	.18
MAY 22...	.2	23	334	.45	1.35	.01	.04	1.4	1.4	.18
JUL 22...	.5	26	370	.50	1.00	.00	.00	1.0	1.0	.16

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
OCT 30...	0830	2	3	0	< 1	160	0	< 1	0
MAR 11...	1600	2	2	0	< 1	140	3	< 1	0
MAY 22...	0945	4	4	0	< 1	160	1	< 1	0
JUL 22...	1545	5	6	0	0	200	1	< 1	10

06137570 BOXELDER CREEK NEAR ROCKY BOY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
OCT 30...	0	0	0	460	30	3	0	100	80
MAR 11...	0	6	2	1100	160	3	0	140	70
MAY 22...	0	6	4	700	30	3	0	310	240
JUL 22...	0	6	2	600	10	11	0	190	120

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT 30...	.0	.0	3	3	0	0	20	< 3
MAR 11...	.0	.0	3	2	0	0	30	< 3
MAY 22...	.0	.0	7	6	0	0	30	< 3
JUL 22...	.0	.1	6	3	0	0	40	< 3

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 30...	0830	3.5	4.0	8	.09	92
MAR 11...	1600	.0	14	35	1.3	92
MAY 22...	0945	16.5	1.5	32	.13	86
JUL 22...	1545	22.0	1.0	15	.04	--

06137580 SAGE CREEK NEAR WHITLASH, MT

LOCATION.--Lat 48°53'30", long 111°01'47", in NW¼NW¼SW¼ sec. 12, T.36 N., R.5 E., Liberty County, Hydrologic Unit 10050006, on left bank, 0.2 mi (0.3 km) downstream from bridge on Black Jack Road, 10 mi (16 km) southeast of Whitlash.

DRAINAGE AREA.--7.26 mi^2 (18.80 km^2).

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,900 ft (1,189 m), from topographic map.

REMARKS.--Records good except those for winter period and those for period of no gage-height record, Mar. 13 to Apr. 16, which are poor. No known regulation above station. Diversions for irrigation of about 40 acres (162,000 m^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22 ft^3/s (0.62 m^3/s) May 2, 1978, Mar. 7, Apr. 7, May 16, 1979; maximum gage height, 2.62 ft (0.799 m) Mar. 8, 1978 (backwater from ice); minimum discharge, no flow part of several days during winter periods of 1978 and 1980, result of siphon action over weir.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16 ft^3/s (0.45 m^3/s) May 25, gage height, 1.21 ft (0.369 m), no peak above base of 20 ft^3/s (0.57 m^3/s); maximum gage height, 2.08 ft (0.634 m) Jan. 24 (backwater from ice); no flow part of each day Feb. 16, 17, 19, 24, result of siphon action over weir.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.55	.87	.85	.59	.45	.90	.45	3.0	4.2	1.4	.66	.52
2	.50	.84	.99	.48	.60	1.0	.45	2.9	4.0	1.3	.58	.44
3	.51	.99	.95	.47	.80	.80	.50	3.0	4.2	1.5	.89	.49
4	.42	.99	.93	.46	.75	.70	.50	2.9	3.7	1.2	.88	.41
5	.49	.87	.92	.40	.70	.60	.55	2.6	3.6	1.1	.64	.35
6	.50	.73	.98	.23	.60	.60	.55	2.5	3.5	1.0	.60	.31
7	.50	.83	.58	.16	.60	.70	.60	2.4	3.2	1.0	.53	.36
8	.66	.79	1.1	.14	.60	.80	.60	2.2	2.9	.91	.47	.41
9	.69	.95	1.3	.12	.55	.90	.55	2.1	2.8	.93	.66	.40
10	.63	.97	.58	.11	.50	.90	.50	1.9	2.6	1.2	.62	.39
11	.60	.94	.50	.10	.50	.85	.60	1.7	2.8	1.2	.59	.37
12	.64	.92	.60	.50	.50	.79	.80	1.8	2.8	1.0	.68	.43
13	.67	.87	.55	1.0	.40	.75	1.0	1.7	2.8	1.1	.67	.61
14	.65	.99	.79	.90	.30	.75	3.0	1.6	2.3	.99	.49	.50
15	.68	1.0	.27	.82	.25	.70	5.0	1.5	2.1	.94	.41	.66
16	.69	.99	.27	.75	.30	.70	4.0	1.3	2.0	.90	.40	.58
17	.69	1.1	1.0	.63	.35	.65	3.2	1.3	1.9	.93	.51	.51
18	.72	1.0	1.6	.57	.35	.65	3.2	1.2	1.8	.95	.68	.58
19	.86	.63	1.0	.35	.40	.65	3.0	1.1	1.7	1.0	.86	.54
20	.89	.61	.88	.45	.30	.60	3.7	1.1	1.6	1.0	.51	.55
21	.79	.70	.80	.60	.16	.60	4.1	1.0	1.5	.81	.56	.64
22	.77	.82	.49	.75	.06	.60	3.4	1.0	1.5	.78	.61	.63
23	.74	.90	.36	.90	.05	.55	3.2	2.4	1.8	.60	.53	.50
24	.71	.75	.67	.80	.05	.55	3.2	2.0	1.4	.72	.45	.65
25	.67	.76	.86	.50	.30	.55	3.2	11	1.3	.71	.50	.59
26	.66	.46	.72	.30	.50	.50	3.2	8.3	1.7	.59	.47	.48
27	.76	.44	.59	.15	.80	.50	3.2	6.1	1.7	.57	.51	.50
28	.76	.50	.52	.11	.70	.50	3.2	5.1	1.5	.51	.49	.66
29	.76	.56	.45	.10	.80	.50	3.2	4.8	1.4	.54	.53	.61
30	.77	.70	.28	.15	---	.45	3.3	4.5	1.4	.64	.53	.61
31	.84	---	.62	.30	---	.45	---	4.5	---	.69	.57	---
TOTAL	20.77	24.47	23.00	13.89	13.22	20.74	65.95	90.5	71.7	28.71	18.08	15.28
MEAN	.67	.82	.74	.45	.46	.67	2.20	2.92	2.39	.93	.58	.51
MAX	.89	1.1	1.6	1.0	.80	1.0	5.0	11	4.2	1.5	.89	.66
MIN	.42	.44	.27	.10	.05	.45	.45	1.0	1.3	.51	.40	.31
AC-FT	41	49	46	28	26	41	131	180	142	57	36	30

CAL YR 1979 TOTAL 959.64 MEAN 2.63 MAX 21 MIN .20 AC-FT 1900
WTR YR 1980 TOTAL 406.31 MEAN 1.11 MAX 11 MIN .05 AC-FT 806

06140500 MILK RIVER AT HAVRE, MT

LOCATION (REVISED).--Lat 48°33'50", long 109°41'42", in SE¼NE¼NE¼ sec.6, T.32 N., R.16 E., Hill County, Hydrologic Unit 10050004, on left bank, 1.25 mi (2.01 km) upstream from Bullhook Creek and 7th Avenue East highway bridge in Havre, 8.2 mi (13.2 km) downstream from Big Sandy Creek, 15.8 mi (25.4 km) downstream from Fresno Dam, and at mile 419.2 (674.5 km).

DRAINAGE AREA.--5,785 mi^2 (14,983 km^2), revised, of which 670 mi^2 (1,735 km^2) is probably noncontributing.

PERIOD OF RECORD.--May to November 1898, April 1899 to November 1922, March, April 1923, March, April 1952 (gage heights only, in WSP 1260-B), June 1953 (in WSP 1260-B), June 1953 (in WSP 1320-B), August 1954 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1899-1900, 1902-4, 1907-8, 1909(M), 1912, 1917(M), 1920(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,465.24 ft (751.405 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 4, 1902, nonrecording gage at site 0.75 mi (1.21 km) downstream at different datum. Nov. 4, 1902, to Aug. 6, 1980, nonrecording gages 1.25 mi (2.01 km) downstream on 7th Avenue East highway bridges, all at datum then in use.

REMARKS.--Records poor Oct. 1 to Aug. 6 and good Aug. 7 to Sept. 30. Bullhook Creek flood-control project is designed to bypass damaging floods to Milk River channel several miles downstream. Diversions for irrigation of about 6,000 acres (24.3 km^2) above station. Since 1917, flow increased during irrigation season by water from St. Mary Canal which diverts from the St. Mary River near Babb (station number 06017500). Flow regulated by Fresno Reservoir (station number 06136500). Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--17 years (water years, 1900-1916), prior to operation of St. Mary Canal, 273 ft^3/s (7.731 m^3/s), 197,800 acre-ft/yr (244 hm^3/yr); 32 years (water years, 1917-22, 1955-80), 439 ft^3/s (12.43 m^3/s), 318,100 acre-ft/yr (392 hm^3/yr).

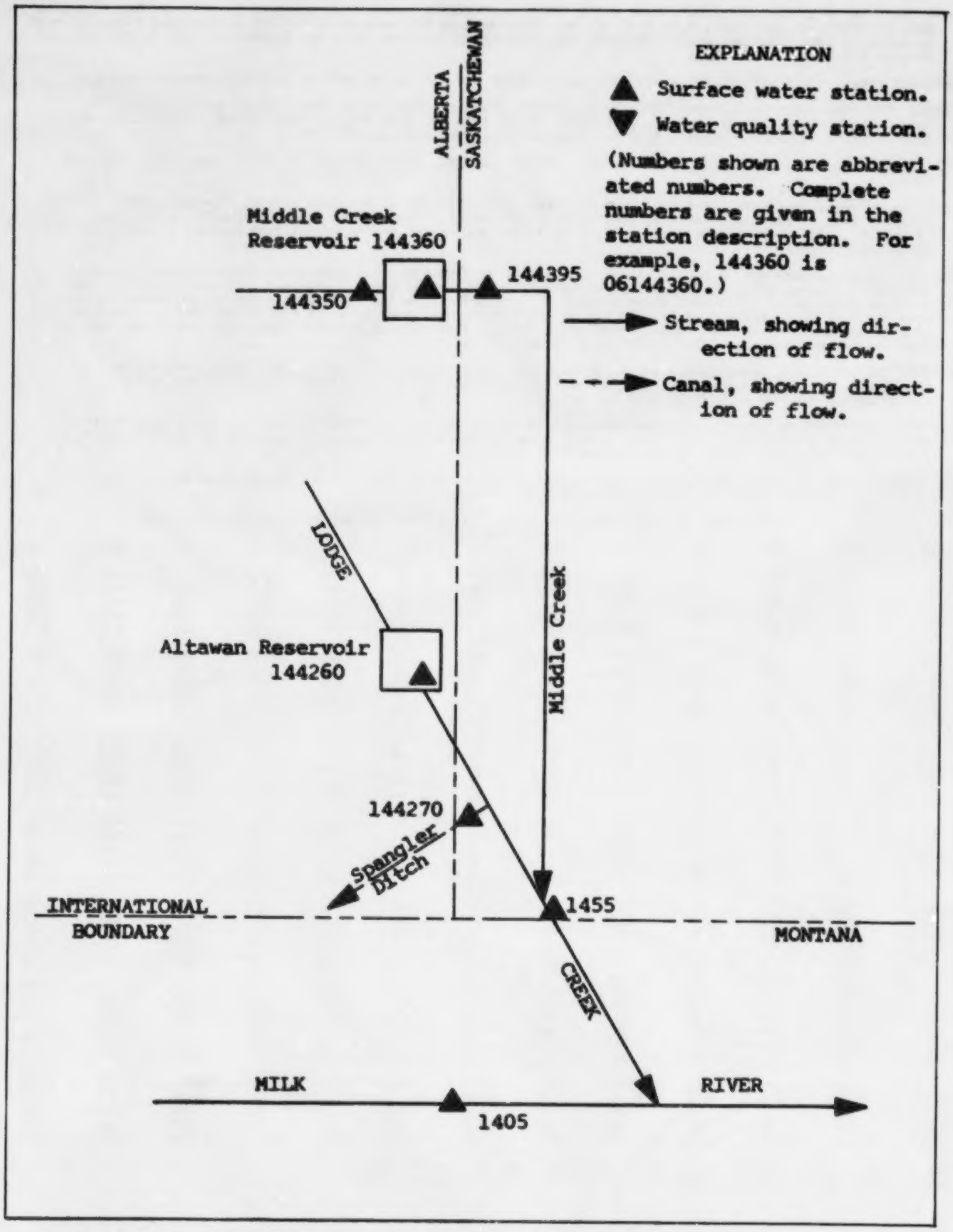
EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 20,000 ft^3/s (566 m^3/s) Apr. 12, 1899, gage height, 19.3 ft (5.88 m), site and datum then in use, from floodmarks, from rating curve extended above 5,200 ft^3/s (147 m^3/s); no flow at times in several years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 1,570 ft^3/s (44.5 m^3/s) May 16, gage height, 8.89 ft (2.710 m); minimum daily, 15 ft^3/s (0.42 m^3/s) Mar. 18-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	35	35	35	40	35	17	519	958	871	1080	519
2	60	35	40	35	40	35	17	607	974	857	1080	517
3	60	35	40	30	40	30	17	591	974	836	1080	515
4	60	35	40	30	40	30	17	591	917	836	950	518
5	60	35	40	30	40	30	17	607	911	829	911	519
6	60	30	40	25	35	30	18	937	891	843	850	521
7	60	30	35	25	35	35	18	1040	815	843	844	521
8	60	30	35	25	35	35	18	1030	773	878	764	519
9	60	30	35	25	35	35	18	1060	780	1110	755	521
10	40	30	35	25	35	35	18	1170	773	1110	748	523
11	40	35	35	25	35	35	19	1170	780	1090	743	522
12	40	40	35	30	35	35	19	1160	607	1350	727	521
13	40	40	35	40	35	25	19	1170	630	1350	672	527
14	40	40	35	40	35	25	19	1160	622	1350	667	530
15	40	40	25	40	35	25	19	1280	622	1340	608	495
16	40	40	25	40	35	25	20	1300	622	1320	600	195
17	40	35	35	35	35	25	20	1320	630	1320	599	105
18	40	35	45	35	35	15	20	1320	675	1310	597	101
19	40	35	45	35	35	15	20	1300	766	1270	598	99
20	40	35	35	35	35	15	20	1200	738	1280	578	95
21	40	35	35	35	35	15	20	1180	843	1310	506	95
22	40	35	35	35	35	15	20	1190	829	1330	508	93
23	40	35	35	35	35	15	20	1190	857	1420	513	60
24	35	35	35	35	35	15	70	1240	885	1430	509	60
25	35	35	35	30	40	15	70	1260	950	1450	510	61
26	35	30	35	30	45	16	70	1260	974	1430	517	58
27	35	30	35	30	50	16	70	1250	1010	1430	505	58
28	35	30	35	30	45	16	70	1190	950	1400	516	57
29	35	30	35	30	40	16	490	1150	950	1380	514	57
30	35	30	35	30	---	16	510	1150	904	1230	518	56
31	35	---	35	30	---	16	---	1030	---	1090	517	---
TOTAL	1380	1025	1110	990	1085	741	1780	33622	24610	36893	21084	9038
MEAN	44.5	34.2	35.8	31.9	37.4	23.9	59.3	1085	820	1190	680	301
MAX	60	40	45	40	50	35	510	1320	1010	1450	1080	530
MIN	35	30	25	25	35	15	17	519	607	829	505	56
AC-FT	2740	2030	2200	1960	2150	1470	3530	66690	48810	73180	41820	17930

CAL YR 1979 TOTAL 217348 MEAN 595 MAX 3160 MIN 25 AC-FT 431100
WTR YR 1980 TOTAL 133358 MEAN 364 MAX 1450 MIN 15 AC-FT 264500



EXPLANATION
▲ Surface water station.
▼ Water quality station.
(Numbers shown are abbreviated numbers. Complete numbers are given in the station description. For example, 144360 is 06144360.)
Stream, showing direction of flow.
Canal, showing direction of flow.
ALBERTA
SASKATCHEWAN
Middle Creek Reservoir 144360
144350
144395
LODGE
Middle Creek
Altawan Reservoir 144260
144270
Spangler Ditch
INTERNATIONAL BOUNDARY
1455
MONTANA
CREEK
MILK
RIVER
1405

Figure 8. Schematic diagram showing diversions and storage in Lodge Creek basin in Canada

06144270 SPANGLER DITCH NEAR GOVENLOCK, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°09'16", long 109°54'58", in NW¼ sec.26, T.2, R.30 W., third meridian, Hydrologic Unit 10050007, on right bank 0.9 mi (1.4 km) south of Altawan Dam, 6.8 mi (10.9 km) southwest of Govenlock, and at mile 0.9 (1.4 km).

PERIOD OF RECORD.--March 1966 to current season. 1915 to 1936, March 1950 to current season, in reports of Department of the Environment, Canada. Seasonal records only. Estimates of seasonal diversion only in most years prior to March 1950.

GAGE.--Water-stage recorder. Altitude of gage is 2,920 ft (890 m), from topographic map. Prior to March 1950, nonrecording gages at several sites within 2 mi (3 km) of present site at different datums. March 1950 to July 8, 1960, water-stage recorder at site 350 ft (107 m) downstream at different datum.

REMARKS.--Records fair. No gage-height record Mar. 1 to Apr. 30, Oct. 2-31. Canal diverts water from right bank of Lodge Creek in SW¼ sec.35, T.2, R.30 W., third meridian, for irrigation of 1,320 acres (5.3 km^2) under Spangler irrigation project.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 65 ft^3/s (1.84 m^3/s) Apr. 22, 1950; no flow most of each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	.00	.00	6.0	.00	.00		
2			.00	.00	.00	.00	.00	.00	.00	.00		
3			.00	.00	.00	.00	.00	.00	.00	.00		
4			.00	.00	.00	.00	.00	.00	.00	.00		
5			.00	.00	.00	.00	.00	.00	.00	.00		
6			.00	.00	.00	.00	.00	.00	.00	.00		
7			.00	.00	.00	.00	.00	.00	.00	.00		
8			.00	.00	.00	.00	.00	.00	.00	.00		
9			.00	.00	.00	.00	.00	.00	.00	.00		
10			.00	.00	.00	.00	.00	.00	.00	.00		
11			.00	.00	3.4	.00	.00	.00	.00	.00		
12			.00	.00	41	.00	.00	.00	.00	.00		
13			.00	.00	49	.00	.00	.00	.00	.00		
14			.00	.00	46	.00	.00	.00	.00	.00		
15			.00	.00	47	.00	.14	.00	.00	.00		
16			.00	.00	46	.00	27	.00	.00	.00		
17			.00	.00	47	.00	33	.00	.00	.00		
18			.00	.00	46	.00	29	.00	2.3	.00		
19			.00	.00	46	.00	28	.00	.04	.00		
20			.00	.00	46	.00	27	.00	.00	.00		
21			.00	.00	46	.00	26	.00	.00	.00		
22			.00	.00	46	.00	25	.00	.00	.00		
23			.00	.00	45	.00	24	.00	.00	.00		
24			.00	.00	32	.00	24	.00	.00	.00		
25			.00	.00	35	.00	23	.00	.00	.00		
26			.00	.00	23	.00	22	.00	.00	.00		
27			.00	.00	18	.00	21	.00	.00	.00		
28			.00	.00	5.3	.00	19	.00	.00	.00		
29			.00	.00	.00	.00	18	.00	.00	.00		
30			.00	.00	.00	.00	16	.00	.00	.00		
31			.00	---	.00	---	14	.00	---	.00		
TOTAL			.00	.00	667.70	.00	376.14	6.00	2.34	.00		
MEAN			.000	.000	21.5	.000	12.1	.19	.078	.000		
MAX			.00	.00	49	.00	33	6.0	2.3	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			.00	.00	1320	.00	746	12	4.6	.00		

THE SEASON MARCH TO OCTOBER AC-FT 2,090

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06144350 MIDDLE CREEK NEAR ALBERTA BOUNDARY

(International gaging station)

LOCATION.--Lat 49°25'30", long 110°03'08", in SW¼ sec.34, T.5, R.1 W., fourth meridian, Hydrologic Unit 10050007, on left bank 2 mi (3 km) upstream from Middle Creek Reservoir, 18 mi (29 km) northwest of Govenlock, Saskatchewan, and at mile 65.7 (105.7 km).

DRAINAGE AREA.--116 mi^2 (300 km^2).

PERIOD OF RECORD.--March 1963 to current season. June 1910 to April 1915 and September 1949 to current season in reports of Department of the Environment, Canada. Seasonal records only. Published as "at McKinnon's Ranch" 1910-15.

GAGE.--Water-stage recorder. Datum of gage is 3,381.13 ft (1,030.568 m) above mean sea level (Geodetic Surveys of Canada datum). Prior to Mar. 1, 1951, nonrecording gages, and Mar. 1, 1951, to July 5, 1961, water-stage recorder, at site 0.3 mi (0.5 km) downstream at different datums.

REMARKS.--Records good except those for winter period, which are poor. Minor diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,980 ft^3/s (141 m^3/s) Apr. 15, 1952, gage height, 10.27 ft (3.130 m), site and datum then in use, from rating curve extended above 600 ft^3/s (17.0 m^3/s) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 5.2 ft^3/s (0.14 m^3/s) Apr. 13, gage height, 3.24 ft (0.988 m); minimum daily 0.04 ft^3/s (0.001 m^3/s) July 10-12, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		---	.71	.57	.39	.39	.32	.07	.18	.14		
2		---	.88	.46	.46	.39	.28	.07	.18	.14		
3		---	.67	.49	.46	.53	.28	.11	.14	.14		
4		---	.64	.67	.53	.49	.28	.28	.14	.14		
5		---	.57	1.0	.49	.42	.28	.25	.11	.14		
6		---	.53	1.2	.42	.39	.25	.21	.11	.14		
7		---	.53	.95	.42	.42	.14	.18	.11	.14		
8		---	.64	.85	.42	.39	.11	.18	.11	.14		
9		---	.74	1.2	.42	.35	.07	.21	.11	.11		
10		---	.74	2.7	.39	.35	.04	.25	.11	.14		
11		---	.81	3.9	.39	.53	.04	.21	.11	.18		
12		---	.71	3.9	.35	.46	.04	.18	.11	.18		
13		---	.64	3.8	.32	.88	.07	.18	.14	.21		
14		---	.74	3.8	.35	.57	.18	.18	.14	.28		
15		---	.78	3.1	.35	.46	.18	.11	.11	.28		
16		---	.88	2.5	.32	.35	.18	.11	.11	.28		
17		---	1.1	2.0	.32	.28	.14	.11	.14	.39		
18		---	.92	1.7	.32	.28	.14	.11	.18	.35		
19		---	.74	1.4	.32	.25	.18	.14	.21	.28		
20		---	.64	1.2	.25	.21	.18	.11	.18	.25		
21		---	.60	.95	.28	.21	.18	.11	.14	.28		
22		---	.71	.74	.28	.28	.18	.11	.14	.25		
23		---	.74	.78	.35	.32	.18	.11	.14	.25		
24		---	.64	.74	.39	.32	.11	.11	.18	.21		
25		---	.60	.60	.78	.28	.14	.11	.18	.25		
26		.85	1.2	.57	.60	.57	.11	.11	.14	.25		
27		1.0	2.3	.49	.46	.78	.11	.11	.18	.32		
28		1.2	1.3	.49	.49	.67	.07	.14	.18	.28		
29		.88	1.4	.53	.46	.46	.07	.18	.18	.28		
30		---	1.1	.49	.42	.35	.04	.18	.14	.28		
31		---	.64	---	.39	---	.07	.18	---	.28		
TOTAL		---	25.84	43.77	12.59	12.63	4.64	4.70	4.33	6.98		
MEAN		---	.83	1.46	.41	.42	.15	.15	.14	.23		
MAX		---	2.3	3.9	.78	.88	.32	.28	.21	.39		
MIN		---	.53	.46	.25	.21	.04	.07	.11	.11		
AC-FT		---	51	87	25	25	9.2	9.3	8.6	14		

THE SEASON MARCH TO OCTOBER AC-FT 229

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06144395 MIDDLE CREEK BELOW MIDDLE CREEK RESERVOIR, NEAR GOVENLOCK, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°24'44", long 109°55'06", in SW¼ sec.25, T.5, R.30 W., third meridian, Hydrologic Unit 10050007, on right bank 9.8 mi (15.8 km) downstream from Middle Creek Reservoir, 14 mi (23 km) northwest of Govenlock, and at mile 52.4 (84.3 km).

DRAINAGE AREA.--161 mi^2 (417 km^2).

PERIOD OF RECORD.--April 1972 to current season. July 1909 to May 1931, September 1935 to October 1936, and April 1972 to current season in reports of Department of the Environment, Canada. Seasonal records only. Published as "at Ross Ranch" 1909-20, "at Downes and Robert's Ranch" 1920-23, and "at Wright's Ranch" 1920-31, 1935-36. Discharge measurements only during 1928 season.

GAGE.--Water-stage recorder. Altitude of gage is 3,300 ft (1,010 m), from topographic map. Prior to April 1972, nonrecording gages at two sites within 2 mi (3 km) of present site, at different datums.

REMARKS.--Records good. Flow completely regulated by Middle Creek Reservoir (station number 06144360). Many diversions for irrigation above station. Flow may be diverted to Lodge Creek through Middle Creek Reservoir. Diversions for irrigation of 920 acres (3.7 km^2) between Middle Creek Reservoir and station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge recorded, 58 ft^3/s (1.64 m^3/s) Apr. 18, 1974; no flow at times most seasons.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	10	.00	.00	.00	.00	.00		
2			.00	.00	28	.00	.00	.00	.00	.00		
3			.00	.00	31	.00	.00	.00	.00	.00		
4			.00	.00	34	.00	.00	.00	.00	.00		
5			.00	.00	33	.00	.00	.00	.00	.00		
6			.00	.00	34	.00	.00	.00	.00	.00		
7			.00	.00	23	.00	.00	.00	.00	.00		
8			.00	.00	23	.00	.00	.00	.00	.00		
9			.00	.00	26	.00	.00	.00	.00	.00		
10			.00	.00	22	.00	.00	.00	.00	.00		
11			.00	.00	25	.00	.00	.00	.00	.00		
12			.00	.00	21	.00	.00	.00	.00	.00		
13			.00	.00	25	.00	.00	.00	.00	.00		
14			.00	.00	20	.00	.00	.00	.00	.00		
15			.00	.00	19	.00	.00	.00	.00	.00		
16			.00	.00	29	.00	.00	.00	.00	.00		
17			.00	.00	28	.00	.00	.00	.00	.00		
18			.00	.00	26	.00	.00	.00	.00	.00		
19			.00	.00	5.9	.00	.00	.00	.00	.00		
20			.00	.00	3.0	.00	.00	.00	.00	.00		
21			.00	.00	5.0	.00	.00	.00	.00	.00		
22			.00	.00	13	.00	.00	.00	.00	.00		
23			.00	.00	25	.00	.00	.00	.00	.00		
24			.00	.00	6.7	.00	.00	.00	.00	.00		
25			.00	.00	1.6	.00	.00	.00	.00	.00		
26			.00	.00	.53	.00	.00	.00	.00	.00		
27			.00	.00	.14	.00	.00	.00	.00	.00		
28			.00	.00	.04	.00	.00	.00	.00	.00		
29			.00	.00	.00	.00	.00	.00	.00	.00		
30			.00	.00	.00	.00	.00	.00	.00	.00		
31			.00	---	.00	---	.00	.00	---	.00		
TOTAL			.00	.00	518.91	.00	.00	.00	.00	.00		
MEAN			.000	.000	16.7	.000	.000	.000	.000	.000		
MAX			.00	.00	34	.00	.00	.00	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			.00	.00	1030	.00	.00	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 1,030

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06145500 LODGE CREEK BELOW MCRAE CREEK, AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'20", long 109°43'05", in SW¼ sec.5, T.1, R.28 W., third meridian, in Saskatchewan, Hydrologic Unit 10050007, on right bank 0.3 mi (0.5 km) downstream from McRae Creek, 0.4 mi (0.6 km) north of international boundary, 0.8 mi (1.3 km) northeast of Willow Creek Port of Entry, 31 mi (50 km) north of Havre, Mt, and at mile 84.3 (135.6 km).

DRAINAGE AREA.--818 mi^2 (2,119 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1951 to current season (seasonal records only). Prior to October 1951, records were collected on both McRae Coulee (1927-51) and Lodge Creek above McRae Coulee (1910-51). Summations are equivalent to records at this site. Prior to March 1965, published as "below McRae Coulee."

GAGE.--Water-stage recorder. Datum of gage is 2,731.0 ft (832.41 m) above mean sea level (International Boundary Survey datum).

REMARKS.--Water-discharge records fair. Natural flow affected by numerous storage reservoirs; diversions for irrigation of about 3,000 acres (12 km^2) and return flow from irrigation area.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,760 ft^3/s (220 m^3/s) June 14, 1962, gage height, 14.40 ft (4.389 m); no flow at times each season. Flood of June 14, 1962, is probably the highest since 1910.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 18 ft^3/s (0.51 m^3/s) May 15, gage height, 2.58 ft (0.786 m); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.18	.11	7.4	.11	.00	.00	.00		
2			.00	.28	.07	5.8	.07	.00	.00	.00		
3			.00	.67	.07	5.2	.07	.00	.00	.00		
4			.00	.92	.04	4.7	.07	.00	.00	.00		
5			.00	.81	.07	4.1	.07	.00	.00	.00		
6			.00	.81	.04	3.3	.04	.00	.00	.00		
7			.00	.64	.04	2.7	.04	.00	.00	.00		
8			.00	.57	.04	2.1	.04	.00	.00	.00		
9			.00	.57	.04	1.6	.04	.00	.00	.00		
10			.00	.88	.04	1.5	.00	.00	.00	.00		
11			.00	1.4	.04	1.6	.00	.00	.00	.00		
12			.00	1.6	2.9	1.4	.00	.00	.00	.00		
13			.00	1.9	7.3	1.4	.00	.00	.00	.00		
14			.00	1.6	10	1.2	.00	.00	.00	.00		
15			.00	1.6	16	1.1	.00	.00	.00	.00		
16			.00	1.3	13	.71	.00	.00	.00	.00		
17			.00	1.2	10	.57	.00	.00	.00	.00		
18			.57	1.0	10	.49	.00	.00	.00	.00		
19			1.2	.85	7.4	.46	.00	.00	.00	.00		
20			.74	.92	8.3	.57	.00	.00	.00	.00		
21			.57	.85	14	.46	.00	.00	.00	.00		
22			.49	.71	13	.32	.00	.00	.00	.00		
23			.35	.67	13	.28	.00	.00	.00	.00		
24			.39	.64	10	.21	.00	.00	.00	.00		
25			.11	.60	10	.11	.00	.00	.00	.00		
26			.07	.42	9.0	.28	.00	.00	.00	.00		
27			.14	.32	7.7	.42	.00	.00	.00	.00		
28			.25	.28	15	.39	.00	.00	.00	.00		
29			.21	.18	13	.28	.00	.00	.00	.00		
30			.18	.14	10	.18	.00	.00	.00	.00		
31			.14	---	8.2	---	.00	.00	---	.00		
TOTAL			5.41	24.51	208.40	50.83	.55	.00	.00	.00		
MEAN			.17	.82	6.72	1.69	.018	.000	.000	.000		
MAX			1.2	1.9	16	7.4	.11	.00	.00	.00		
MIN			.00	.14	.04	.11	.00	.00	.00	.00		
AC-FT			11	49	413	101	1.1	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 575

06145500 LODGE CREEK BELOW MCRAE CREEK, AT INTERNATIONAL BOUNDARY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1977 to current year.

WATER-QUALITY DATA, WATER YEAR SEPTEMBER 1979 TO OCTOBER 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, WATER (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)
MAR 24...	1200	.34	3	665	7.8	.0	190	45	33	25	63	2.0
MAY 13...	1830	8.7	--	819	8.6	16.0	220	50	37	31	86	2.5
JUN 16...	0910	.65	--	826	8.7	21.0	210	0	28	33	100	3.0

DATE	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)
MAR 24...	10	140	190	6.0	.1	2.9	415	.56	.38	.01	.09
MAY 13...	9.4	170	220	5.7	.1	.6	492	.67	11.6	.03	.02
JUN 16...	11	240	170	9.3	.3	1.4	498	.68	.87	.04	.01

DATE	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)
MAR 24...	1	< 1	100	1	0	< 10	50
MAY 13...	3	< 1	110	< 1	0	< 10	20
JUN 16...	4	< 1	150	< 1	0	< 10	< 10

DATE	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR 24...	< 10	190	.0	0	0	< 3
MAY 13...	< 10	4	.0	10	0	< 3
JUN 16...	< 10	3	.0	0	0	< 3

RESERVOIRS IN LODGE CREEK BASIN IN SASKATCHEWAN

(International gaging stations)

06144260 ALTAWAN RESERVOIR.--Lat 49°09'59", long 109°55'03", in NE¼SW¼ sec.35, T.2, R.30 W., third meridian, Hydrologic Unit 10050007, at dam on Lodge Creek, 6.3 mi (10.1 km) southwest of Govenlock, and at mile 113.5 (182.6 km). DRAINAGE AREA, 365 mi^2 (945 km^2). PERIOD OF RECORD, February 1966 to current season. February 1960 to current season in reports of Department of the Environment, Canada. Seasonal records only. Water-stage recorder. Datum of gage is at mean sea level (PFRA datum). Prior to July 7, 1967, nonrecording gage in gate well read every ten days during irrigation season.

Reservoir is formed by earthfill dam with concrete spillway and control works as well as an emergency dirt spillway, completed in 1959. Total capacity is 5,830 acre-ft (7.19 hm^3) between elevation 2,917.6 ft (889.28 m), bottom of outlet, and 2,952.5 ft (899.92 m), maximum design level. No dead storage. Elevation of top of dam, 2,960.0 ft (902.21 m); elevation of natural emergency spillway crest, 2,955.0 ft (900.68 m); and elevation of spillway crest, 2,949.0 ft (898.86 m). Figures given herein represent total contents. Water is used for irrigation. This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 7,080 acre-ft (8.73 hm^3) May 7, 1967, elevation, 2,955.37 ft (900.797 m), from highwater mark; no storage Mar. 1, 1960.

EXTREMES FOR CURRENT SEASON: Maximum contents, 2,700 acre-ft (3.33 hm^3) Apr. 21, elevation, 2,943.63 ft (897.218 m); minimum daily, 10 acre-ft (12,330 m^3) Sept. 24 to Oct. 31, elevation, 2,918.63 ft (889.598 m).

06144360 MIDDLE CREEK RESERVOIR.--Lat 49°24'20", long 109°59'01", in NE¼ sec.21, T.5, R.30 W., third meridian, Hydrologic Unit 10050007, at dam on Middle Creek, 0.7 mi (1.1 km) east of Alberta-Saskatchewan boundary, 6.3 mi (10.1 km) west of Battle Creek, 15 mi (24 km) northwest of Govenlock, and at mile 60.2 (96.9 km). DRAINAGE AREA, 130 mi^2 (337 km^2). PERIOD OF RECORD, February 1966 to current season. Occasional nonrecording gage readings in 1937 and 1939-51, March 1952 to current season in reports of Department of the Environment, Canada. Seasonal records only. Water-stage recorder. Datum of gage is at mean sea level (PFRA datum). Prior to July 7, 1967, nonrecording gage in gate well read every ten days during irrigation season.

Reservoir is formed by earthfill dam with concrete control works and sod spillway at elevation 3,383.0 ft (1,031.14 m) on Middle Creek and at Ducks Unlimited outlet, constructed in 1937. Total capacity, 13,080 acre-ft (16.1 hm^3) between elevation 3,368.60 ft (1,026.749 m), invert of outlet pipe on Middle Creek, and 3,383.0 ft (1,031.14 m), natural spillway. Invert of outlet pipe at Ducks Unlimited outlet is at elevation 3,372.04 ft (1,027.798 m). Figures given herein represent total contents. Water is used for irrigation and to maintain levels of Orleans Lakes. Water may be released to Lodge Creek via Ducks Unlimited outlet, Simms Lake and Walburger Coulee. Spillway does not return water to Middle Creek, may return to Lodge Creek via Walburger Coulee. This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 23,080 acre-ft (28.5 hm^3) Apr. 13, 1952, elevation, 3,387.92 ft (1,032.638 m); no storage at times.

EXTREMES FOR CURRENT SEASON: Maximum contents, 7,630 acre-ft (9.41 hm^3) Apr. 16, elevation, 3,378.41 ft (1,029.739 m); minimum, 3,840 acre-ft (4.73 hm^3) Oct. 25, elevation, 3,374.72 ft (1,028.615).

Monthend contents, in acre-ft, year October 1979 to October 1980

Date	Altawan Reservoir	Middle Creek Reservoir
Oct. 31	2,380	7,670
Nov. 30	-	-
Dec. 31	-	-
Jan. 31	-	-
Feb. 29	2,290	7,500
Mar. 31	2,300	7,540
Apr. 30	2,660	7,360
May 31	1,210	5,220
June 30	1,220	5,060
July 31	110	4,530
Aug. 31	96	4,210
Sept. 30	10	3,940
Oct. 31	10	3,850

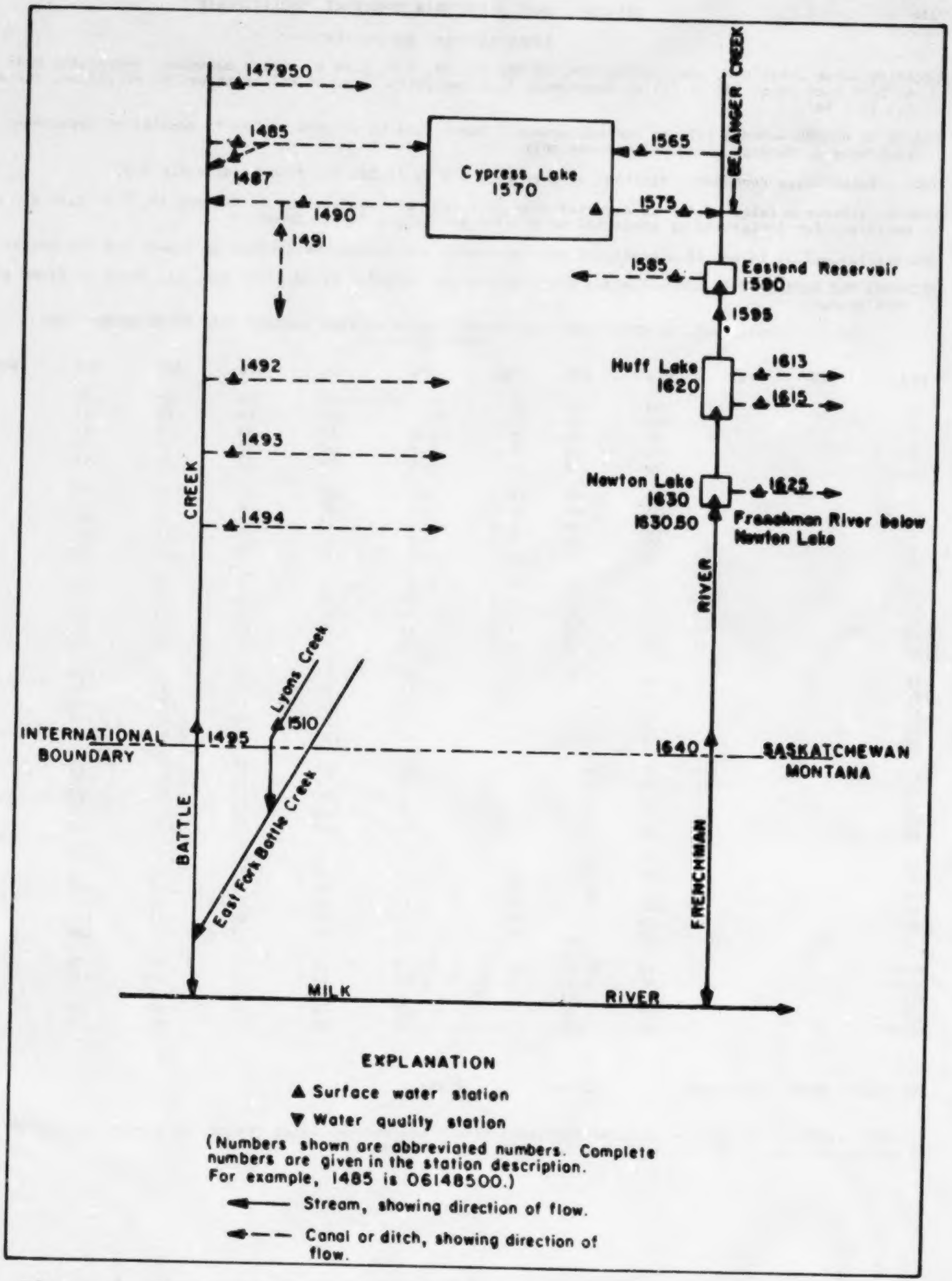

147950
1485
1487
1490
1491
Cypress Lake
1570
1565
1575
BELANGER CREEK
1585
Eastend Reservoir
1590
1595
Huff Lake
1620
1613
1615
Newton Lake
1630
1625
1630.50
Frenchman River below Newton Lake
1492
1493
1494
CREEK
RIVER
Lyons Creek
1510
INTERNATIONAL BOUNDARY
1495
1640
SASKATCHEWAN
MONTANA
BATTLE
East Fork Battle Creek
FRENCHMAN
MILK
RIVER
EXPLANATION
▲ Surface water station
▼ Water quality station
(Numbers shown are abbreviated numbers. Complete numbers are given in the station description. For example, 1485 is 06148500.)
Stream, showing direction of flow.
Canal or ditch, showing direction of flow.

Figure 9 . Schematic diagram showing diversions and storage in Battle Creek and Frenchman River basins in Canada.

06147950 GAFF DITCH NEAR MERRYFLAT, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°26'05", long 109°50'07", in NW¼ sec.34, T.5, R.29 W., third meridian, Hydrologic Unit 10050008, on left bank about 200 ft (61 m) downstream from headgates, 4 mi (6 km) southwest of Merryflat, and at mile 0.1 (0.2 km).

PERIOD OF RECORD.--March 1972 to current season. March 1964 to current season in reports of Department of the Environment, Canada. Seasonal records only.

GAGE.--Water-stage recorder. Altitude of gage is 3,350 ft (1,020 m), from topographic map.

REMARKS.--Records fair. Water is diverted from left bank of Battle Creek in NW¼ sec.34, T.5. R.29 W., third meridian, for irrigation of about 890 acres (3.6 km^2) along Battle Creek.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 42 ft^3/s (1.19 m^3/s) Apr. 22, 1971; no flows at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	17	11	.11	.00	.35	.14		
2			.00	.00	17	11	.07	.00	.28	.21		
3			.00	.00	16	9.2	.07	.00	.18	.21		
4			.00	.00	16	4.2	.07	.25	.18	.11		
5			.00	.00	14	3.9	.04	.32	.14	.11		
6			.00	.00	14	3.5	.07	.21	.00	.07		
7			.00	.00	12	3.3	.07	.04	.00	.04		
8			.00	.00	7.5	2.9	.11	.00	.00	.00		
9			.00	.00	9.1	2.5	.11	.07	.00	.00		
10			.00	.00	10	2.5	.11	.07	.00	.00		
11			.00	.04	10	2.5	.11	.11	.00	.00		
12			.00	.04	9.7	.32	.71	.14	.00	.00		
13			.00	.04	9.6	.21	1.2	.18	.04	.00		
14			.00	.04	8.8	.18	2.4	.18	.07	.00		
15			.00	.04	5.7	.14	1.6	.18	.18	.00		
16			.00	8.3	2.9	.14	1.2	.18	.28	.00		
17			.00	15	6.6	.14	.95	.18	1.9	.00		
18			.00	17	4.0	.14	.64	.14	2.4	.00		
19			.00	16	1.2	.18	.21	.18	2.4	.00		
20			.00	16	1.1	.14	.21	.18	2.4	.00		
21			.00	16	1.1	.11	.21	.18	2.5	.00		
22			.00	15	.99	.11	.18	.14	2.4	.00		
23			.00	15	.88	.07	.35	.14	1.9	.00		
24			.00	14	.95	.07	.25	.11	2.2	.00		
25			.00	13	.81	.07	.28	.07	1.3	.00		
26			.00	15	7.2	.11	.32	.07	.11	.00		
27			.00	17	14	.11	.32	.07	.07	.00		
28			.00	10	11	.11	.32	.18	.07	.00		
29			.00	18	10	.11	.32	.21	.11	.00		
30			.00	17	10	.11	.28	.46	.11	.00		
31			.00	---	10	---	.07	.53	---	.00		
TOTAL			.00	222.50	259.13	59.07	12.96	4.77	21.57	.89		
MEAN			.000	7.42	8.36	1.97	.42	.15	.72	.029		
MAX			.00	18	17	11	2.4	.53	2.5	.21		
MIN			.00	.00	.81	.07	.04	.00	.00	.00		
AC-FT			.00	441	514	117	26	9.5	43	1.8		

THE SEASON MARCH TO OCTOBER AC-FT 1,150

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06148500 CYPRESS LAKE WEST INFLOW CANAL NEAR WEST PLAINS, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°28'18", long 109°37'08", in SE¼ sec.18, T.6, R.27 W., third meridian, Hydrologic Unit 10050008, on left bank 2.5 mi (4.0 km) downstream from canal headgates, 5.5 mi (8.8 km) northeast of West Plains, 13 mi (21 km) northwest of Consul, and at mile 2.5 (4.0 km).

PERIOD OF RECORD.--March 1939 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 3,210 ft (978 m), from topographic map. Prior to Oct. 16, 1956, at site 2.3 mi (3.7 km) upstream at different datum.

REMARKS.--Records good except those for periods of ice effect, which are poor. Canal diverts water from Battle Creek in NW¼ sec.1, T.6, R.28 W., third meridian, for storage in Cypress Lake. Part of or all of flow may be returned to Battle Creek via wasteway and drain canal 0.4 mi (0.6 km) downstream.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 884 ft^3/s (25.0 m^3/s) Apr. 27, 1965; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	6.3	.00	.00	.00	.00	.00	.00		
2			.00	5.9	.00	.00	.00	.00	.00	.00		
3			.00	5.7	.00	.00	.00	.00	.00	.00		
4			.00	6.0	.00	.00	.00	.00	.00	.00		
5			.00	6.4	.00	.00	.00	.00	.00	.00		
6			.00	6.0	.00	.00	.00	.00	.00	.00		
7			.00	5.6	.00	25	.00	.00	.00	.00		
8			.00	12	.00	26	.00	.00	.00	.00		
9			.00	13	.00	20	.00	.00	.00	.00		
10			.00	13	.00	4.2	.00	.00	.00	.00		
11			.00	11	.74	4.3	.00	.00	.00	.00		
12			.00	.28	.46	5.9	.00	.00	.00	.00		
13			.00	.07	.07	4.9	.00	.00	.00	.00		
14			.00	29	.00	5.1	.00	.00	.00	.00		
15			.00	126	.00	5.7	.00	.00	.00	.00		
16			.00	102	.00	6.2	.00	.00	.00	.00		
17			.00	56	.00	7.5	.00	.00	.00	.00		
18			.00	29	.00	13	.00	.00	.00	.00		
19			.74	10	.00	14	.00	.00	.00	.00		
20			2.6	3.9	.00	11	.00	.00	.00	.00		
21			4.6	3.0	.00	.35	.00	.00	.00	.00		
22			10	2.8	.00	.00	.00	.00	.00	.00		
23			4.2	3.7	.00	.00	.00	.00	.00	.00		
24			6.3	1.0	.00	.00	.00	.00	.00	.00		
25			3.7	.42	.57	.00	.00	.00	.00	.00		
26			5.5	.21	.39	.00	.00	.00	.00	.00		
27			14	.00	.00	.00	.00	.00	.00	.00		
28			23	.00	.00	.00	.00	.00	.00	.00		
29			19	.00	.00	.00	.00	.00	.00	.00		
30			11	.00	.00	.00	.00	.00	.00	.00		
31			14	---	.00	---	.00	.00	---	.00		
TOTAL			118.64	458.28	2.23	153.15	.00	.00	.00	.00		
MEAN			3.83	15.3	.072	5.11	.000	.000	.000	.000		
MAX			23	126	.74	26	.00	.00	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			235	909	4.4	304	.00	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 1,450

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06148700 CYPRESS LAKE WEST INFLOW CANAL DRAIN NEAR OXARAT, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°28'26", long 109°36'41", in NW¼ sec.17, T.6, R.27 W., third meridian, Hydrologic Unit 10050008, on left bank about 500 ft (152 m) downstream from drain gate on Cypress Lake west inflow canal, 0.5 mi (0.8 km) upstream from Battle Creek, 4 mi (6 km) northwest of Oxarat Post Office, and at mile 2.9 (4.7 km).

PERIOD OF RECORD.--March 1963 to current season. March 1955 to current season in reports of Department of the Environment, Canada. Seasonal records only.

GAGE.--Water-stage recorder. Altitude of gage is 3,200 ft (975 m), from topographic map.

REMARKS.--Records fair. Drain used as an emergency bypass to return diverted water to Battle Creek. It may also be used to return stored water from Cypress Lake when lake stage is high.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 450 ft^3/s (12.7 m^3/s) Apr. 20, 1955; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	6.3	.00	.00	.00	.00	.00	.00		
2			.00	5.9	.00	.00	.00	.00	.00	.00		
3			.00	5.7	.00	.00	.00	.00	.00	.00		
4			.00	6.0	.00	.00	.00	.00	.00	.00		
5			.00	6.4	.00	.00	.00	.00	.00	.00		
6			.00	6.0	.00	.00	.00	.00	.00	.00		
7			.00	5.6	.00	.00	.00	.00	.00	.00		
8			.00	2.8	.00	.00	.00	.00	.00	.00		
9			.00	.57	.00	.00	.00	.00	.00	.00		
10			.00	.32	.00	.00	.00	.00	.00	.00		
11			.00	.25	.00	.00	.00	.00	.00	.00		
12			.00	.21	.00	.00	.00	.00	.00	.00		
13			.00	.18	.00	.00	.00	.00	.00	.00		
14			.00	.18	.00	.00	.00	.00	.00	.00		
15			.00	.14	.00	.00	.00	.00	.00	.00		
16			.00	.07	.00	.00	.00	.00	.00	.00		
17			.00	.04	.00	.00	.00	.00	.00	.00		
18			.00	.04	.00	.00	.00	.00	.00	.00		
19			.74	.04	.00	.00	.00	.00	.00	.00		
20			2.6	.04	.00	.00	.00	.00	.00	.00		
21			4.6	.04	.00	.00	.00	.00	.00	.00		
22			10	.04	.00	.00	.00	.00	.00	.00		
23			4.2	.00	.00	.00	.00	.00	.00	.00		
24			6.3	.00	.00	.00	.00	.00	.00	.00		
25			3.7	.00	.00	.00	.00	.00	.00	.00		
26			5.5	.00	.00	.00	.00	.00	.00	.00		
27			14	.00	.00	.00	.00	.00	.00	.00		
28			23	.00	.00	.00	.00	.00	.00	.00		
29			19	.00	.00	.00	.00	.00	.00	.00		
30			11	.00	.00	.00	.00	.00	.00	.00		
31			14	---	.00	---	.00	.00	---	.00		
TOTAL			118.64	46.86	.00	.00	.00	.00	.00	.00		
MEAN			3.83	1.56	.000	.000	.000	.000	.000	.000		
MAX			23	6.4	.00	.00	.00	.00	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			235	93	.00	.00	.00	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 328

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06149000 CYPRESS LAKE WEST OUTFLOW CANAL NEAR WEST PLAINS, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°28'12", long 109°35'18", in SW¼ sec.16, T.6, R.27 W., third meridian, Hydrologic Unit 10050008, on left bank 1.1 mi (1.8 km) downstream from Cypress Lake West Dam, 6 mi (10 km) northeast of West Plains, 12.6 mi (20.3 km) north of Consul, and at mile 0.6 (1.0 km).

PERIOD OF RECORD.--March 1940 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 3,180 ft (969 m), from topographic map. Prior to Sept. 18, 1952, at site 1 mi (2 km) upstream and 300 ft (91 m) downstream from Cypress Lake West Dam at different datum.

REMARKS.--Records good. Canal diverts water from Cypress Lake in NW¼ sec.15, T.6, R.27 W., third meridian, for irrigation of 5,500 acres (22 km^2) in Battle Creek basin in Saskatchewan. Water may be delivered to Battle Creek or diverted into Vidora Ditch at gate structure near lower end of canal.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 304 ft^3/s (8.61 m^3/s) May 4, 1951; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.53	.04	8.0	.11	23	.00	.00		
2			.00	.53	.04	4.7	.11	.42	.00	.00		
3			.00	.71	.07	.49	.11	.18	.00	.00		
4			.00	.64	.07	.35	.14	.14	.00	.00		
5			.00	.53	.07	.32	.14	.14	.00	.00		
6			.00	.46	.07	.32	.14	.14	.00	.00		
7			.00	.46	.04	.32	.14	.14	.00	.00		
8			.00	.46	.04	.32	.18	.14	.00	.00		
9			.00	.78	17	.25	.14	.18	.00	.00		
10			.00	.71	40	.25	.14	.25	.00	.00		
11			.00	.71	40	.28	.25	.25	.00	.00		
12			.00	.35	40	.60	28	.18	.00	.00		
13			.00	.11	76	.28	39	.14	.00	.00		
14			.00	.11	161	.18	66	.11	.00	.00		
15			.00	.14	160	.18	124	.04	.00	.00		
16			.00	.14	159	.18	123	.04	.00	.00		
17			.00	.11	162	.14	123	.04	.00	.00		
18			.00	.14	180	.18	122	.00	.00	.00		
19			.00	.14	178	.21	122	.00	.00	.00		
20			.00	.14	177	.18	121	.00	.00	.00		
21			.00	.53	177	.18	120	.00	.00	.00		
22			.00	.21	176	.14	112	.00	.00	.00		
23			.00	.11	173	.21	103	.00	.00	.00		
24			.00	.14	172	.21	102	.00	.00	.00		
25			.00	.11	173	.18	91	.00	.00	.00		
26			.07	.07	170	.25	80	.00	.00	.00		
27			.53	.11	147	.42	78	.00	.00	.00		
28			.53	.07	102	.35	75	.00	.00	.00		
29			.53	.04	31	.25	42	.00	.00	.00		
30			.53	.07	8.1	.14	42	.00	.00	.00		
31			.53	---	7.9	---	30	.00	---	.00		
TOTAL			2.72	9.36	2727.44	20.06	1744.60	25.53	.00	.00		
MEAN			.088	.31	88.0	.67	56.3	.82	.000	.000		
MAX			.53	.78	180	8.0	124	23	.00	.00		
MIN			.00	.04	.04	.14	.11	.00	.00	.00		
AC-FT			5.4	19	5410	40	3460	51	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 8,980

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06149100 VIDORA DITCH NEAR CONSUL, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°27'20", long 109°35'20", in SW¼ sec.9, T.6, R.27 W., third meridian, Hydrologic Unit 10050008, on left bank 0.5 mi (0.8 km) downstream from headgate near lower end of Cypress Lake west outflow canal, 11.7 mi (18.8 km) north of Consul, and at mile 0.5 (0.8 km).

PERIOD OF RECORD.--March 1963 to current season. March 1952 to current season in reports of Department of the Environment, Canada. Seasonal records only.

GAGE.--Water-stage recorder. Altitude of gage is 3,200 ft (975 m), from topographic map. Prior to Aug. 1, 1963, at datum 1.0 ft (0.31 m) higher.

REMARKS.--Records fair. No gage-height record Mar. 1 to Apr 20. Water may be delivered either to this canal or returned to Battle Creek from Cypress Lake. Canal diverts water from Cypress Lake west outflow canal in NE¼ sec.8, T.6, R.27 W., third meridian, for irrigation of about 2,140 acres (8.6 km^2) in the Battle Creek basin.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 97 ft^3/s (2.75 m^3/s) June 12, 13, 1975; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	.00	.00	29	.00	.00		
2			.00	.00	.00	.00	.00	.71	.00	.00		
3			.00	.00	.00	.00	.00	.28	.00	.00		
4			.00	.00	.00	.00	.00	.11	.00	.00		
5			.00	.00	.00	.00	.00	.00	.00	.00		
6			.00	.00	.00	.00	.00	.00	.00	.00		
7			.00	.00	.00	.00	.00	.00	.00	.00		
8			.00	.00	.00	.00	.00	.00	.00	.00		
9			.00	.00	12	.00	.00	.00	.00	.00		
10			.00	.00	31	.00	.00	.00	.00	.00		
11			.00	.00	32	.00	.00	.00	.00	.00		
12			.00	.00	33	.00	27	.00	.00	.00		
13			.00	.00	42	.00	43	.00	.00	.00		
14			.00	.00	66	.00	44	.00	.00	.00		
15			.00	.00	66	.00	41	.00	.00	.00		
16			.00	.00	66	.00	37	.00	.00	.00		
17			.00	.00	66	.00	37	.00	.00	.00		
18			.00	.00	67	.00	37	.00	.00	.00		
19			.00	.00	66	.00	37	.00	.00	.00		
20			.00	.00	67	.00	37	.00	.00	.00		
21			.00	.00	67	.00	37	.00	.00	.00		
22			.00	.00	68	.00	37	.00	.00	.00		
23			.00	.00	68	.00	38	.00	.00	.00		
24			.00	.00	69	.00	38	.00	.00	.00		
25			.00	.00	69	.00	38	.00	.00	.00		
26			.00	.00	67	.00	37	.00	.00	.00		
27			.00	.00	50	.00	36	.00	.00	.00		
28			.00	.00	31	.00	36	.00	.00	.00		
29			.00	.00	8.9	.00	35	.00	.00	.00		
30			.00	.00	.00	.00	38	.00	.00	.00		
31			.00	---	.00	---	35	.00	---	.00		
TOTAL			.00	.00	1111.90	.00	745.00	30.10	.00	.00		
MEAN			.000	.000	35.9	.000	24.0	.97	.000	.000		
MAX			.00	.00	69	.00	44	29	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			.00	.00	2210	.00	1480	60	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 3,740

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06149200 RICHARDSON DITCH NEAR CONSUL, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°21'49", long 109°32'14", near center of south line of sec.11, T.5, R.27 W., third meridian, Hydrologic Unit 10050008, on left bank 420 ft (128 m) downstream from headgate, 4.8 mi (7.7 km) north of Consul, and at mile 0.1 (0.2 km).

PERIOD OF RECORD.--March 1963 to current season. 1910-12, 1914, 1916-20, 1922-33, 1935, July 1946 to current season in reports of Department of the Environment, Canada. Seasonal records only. Estimates of seasonal diversion only in most seasons prior to 1946.

GAGE.--Water-stage recorder. Prior to June 26, 1949, nonrecording gages at different sites and datums. June 26, 1949, to Aug. 28, 1963, water-stage recorder at present site at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records good. No gage-height record Mar. 1 to Apr. 20. Ditch diverts from left bank of Battle Creek in SW¼ sec.11, T.5, R.27 W., third meridian, for irrigation of about 1,330 acres (5.3 km²) along Battle Creek.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 72 ft³/s (2.04 m³/s) June 15, 1974; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	.14	.07	.18	.14	.07		
2			.00	.00	.00	.11	.07	.14	.14	.07		
3			.00	.00	.00	.11	.07	.11	.14	.07		
4			.00	.00	.00	.07	.07	.11	.14	.07		
5			.00	.00	.00	.11	.07	.11	.14	.07		
6			.00	.00	.00	.14	.07	.11	.14	.07		
7			.00	.00	.00	.14	.07	.11	.14	.07		
8			.00	.00	.00	.07	.07	.11	.14	.07		
9			.00	.00	.00	.04	.07	.11	.18	.07		
10			.00	.00	.00	.00	.11	.11	.18	.11		
11			.00	.00	.00	.04	.11	.11	.07	.11		
12			.00	.00	.00	.07	.11	.11	.07	.07		
13			.00	.00	.00	.11	.11	.11	.11	.07		
14			.00	.00	32	.07	.14	.11	.11	.07		
15			.00	.00	42	.07	22	.11	.11	.07		
16			.00	.00	42	.07	31	.11	.14	.07		
17			.00	.00	42	.07	31	.11	.07	.04		
18			.00	.00	44	.04	31	.11	.07	.07		
19			.00	.00	48	.00	31	.14	.07	.07		
20			.00	.00	48	.00	33	.11	.07	.07		
21			.00	.00	49	.00	40	.14	.07	.07		
22			.00	.00	49	.00	40	.14	.07	.07		
23			.00	.00	49	.04	37	.14	.07	.07		
24			.00	.00	49	.04	37	.14	.07	.07		
25			.00	.00	43	.04	35	.11	.07	.07		
26			.00	.00	41	.04	28	.11	.07	.07		
27			.00	.00	34	.04	16	.11	.07	.07		
28			.00	.00	23	.04	4.8	.11	.07	.07		
29			.00	.00	11	.04	6.4	.11	.07	.07		
30			.00	.00	5.4	.04	4.7	.14	.07	.07		
31			.00	---	.21	---	1.1	.14	---	.07		
TOTAL			.00	.00	651.61	1.79	430.21	3.72	3.07	2.22		
MEAN			.000	.000	21.0	.060	13.9	.12	.10	.072		
MAX			.00	.00	49	.14	40	.18	.18	.11		
MIN			.00	.00	.00	.00	.07	.11	.07	.04		
AC-FT			.00	.00	1290	3.6	853	7.4	6.1	4.4		

THE SEASON MARCH TO OCTOBER AC-FT 2,170

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06149300 MCKINNON DITCH NEAR CONSUL, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°19'47", long 109°29'24", in NW¼ sec.30, T.4, R.26 W., third meridian, Hydrologic Unit 10050008, on right bank 1.0 mi (1.6 km) downstream from headgate on Battle Creek, 2.7 mi (4.3 km) northeast of Consul, and at mile 1.0 (1.6 km).

PERIOD OF RECORD.--March 1963 to current season. 1911-26, 1929-31, and March 1938 to current season in reports of Department of the Environment, Canada. Seasonal records only. Estimates of seasonal diversion only in many years prior to 1947.

GAGE.--Water-stage recorder. Prior to September 1949, nonrecording gages at various sites and datums. Sept. 4, 1949, to Aug. 29, 1963, water-stage recorder at present site at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records fair. No gage height record Mar. 1 to Apr. 20 and Sept. 13 to Oct. 31. Ditch diverts from right bank of Battle Creek in NE¼ sec.30, T.4, R.26 W., third meridian, for irrigation of about 1,320 acres (5.3 km^2) along Battle Creek.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 68 ft^3/s (1.93 m^3/s) June 18, 1975; no flow most of each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	3.5	.00	.00	.00	.00		
2			.00	.00	.00	1.8	.00	.00	.00	.00		
3			.00	.00	.00	.21	.00	.00	.00	.00		
4			.00	.00	.00	.07	.00	.00	.00	.00		
5			.00	.00	.00	.04	.00	.00	.00	.00		
6			.00	.00	.00	.04	.00	.00	.00	.00		
7			.00	.00	.00	.00	.00	.00	.00	.00		
8			.00	.00	.00	.00	.00	.00	.00	.00		
9			.00	.00	.00	.00	.00	.00	.00	.00		
10			.00	.00	.00	.00	.00	.00	.00	.00		
11			.00	.00	.00	.00	.00	.00	.00	.00		
12			.00	.00	.00	.00	.00	.00	.00	.00		
13			.00	.00	.00	.00	.00	.00	.00	.00		
14			.00	.00	.00	.00	.00	.00	.00	.00		
15			.00	.00	33	.00	.00	.00	.00	.00		
16			.00	.00	48	.00	20	.00	.00	.00		
17			.00	.00	48	.00	30	.00	.00	.00		
18			.00	.00	48	.00	31	.00	.00	.00		
19			.00	.00	48	.00	31	.00	.00	.00		
20			.00	.00	48	.00	31	.00	.00	.00		
21			.00	.00	48	.00	31	.00	.00	.00		
22			.00	.00	48	.00	31	.00	.00	.00		
23			.00	.00	49	.00	29	.00	.00	.00		
24			.00	.00	49	.00	28	.00	.00	.00		
25			.00	.00	48	.00	28	.00	.00	.00		
26			.00	.00	44	.00	26	.00	.00	.00		
27			.00	.00	44	.00	24	.00	.00	.00		
28			.00	.00	20	.00	28	.00	.00	.00		
29			.00	.00	3.5	.00	23	.00	.00	.00		
30			.00	.00	3.5	.00	6.2	.00	.00	.00		
31			.00	---	3.5	---	.00	.00	---	.00		
TOTAL			.00	.00	633.50	5.66	397.20	.00	.00	.00		
MEAN			.000	.000	20.4	.19	12.8	.000	.000	.000		
MAX			.00	.00	49	3.5	31	.00	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			.00	.00	1260	11	788	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 2,060

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06149400 NASHLYN CANAL NEAR CONSUL, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°13'57", long 109°33'27", in NE¼ sec.22, T.3, T.27 W., third meridian, Hydrologic Unit 10050008, on left bank 0.8 mi (1.3 km) downstream from headgate on Battle Creek, 5.9 mi (9.5 km) south of Consul, and at mile 0.8 (1.3 km).

PERIOD OF RECORD.--March 1963 to current season. 1912, 1914-35, 1938 to current season in reports of Department of the Environment, Canada. Seasonal records only. Prior to March 1950, estimates of seasonal diversion only in many seasons. Prior to Mar. 1, 1971, published as "Stirling and Nash Ditch".

GAGE.--Water-stage recorder. Prior to Sept. 21, 1949, water-stage recorder at present site or nonrecording gages at site 0.5 mi (0.8 km) downstream at different datums.

REMARKS.--Records fair. Ditch diverts water from left bank of Battle Creek in SW¼ sec.27, T.3, R.27 W., third meridian, for irrigation of about 1,880 acres (7.6 km^2) along Battle Creek.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 85 ft^3/s (2.41 m^3/s) Apr. 14, 1952; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	15	7.2	.67	.00	.00	.00	.00		
2			.00	15	9.0	.42	.00	.00	.00	.00		
3			.00	15	8.7	.39	.00	.00	.00	.00		
4			.00	16	6.7	.18	.00	.00	.00	.00		
5			.00	15	3.5	.00	.00	.00	.00	.00		
6			.00	15	4.0	.00	.00	.00	.00	.00		
7			.00	15	4.1	.00	.00	.00	.00	.00		
8			.00	16	4.5	.00	.00	.00	.00	.00		
9			.00	17	4.3	.00	.00	.00	.00	.00		
10			.00	25	4.0	.00	.00	.00	.00	.00		
11			.00	26	4.0	.00	.00	.00	.00	.00		
12			.00	25	6.4	.00	.00	.00	.00	.00		
13			.00	25	9.7	.00	.00	.00	.00	.00		
14			.00	28	9.7	.00	.00	.00	.00	.00		
15			.00	33	12	.00	.00	.00	.00	.00		
16			.00	34	21	.00	.00	.00	.00	.00		
17			.00	33	19	.00	1.1	.00	.00	.00		
18			.00	32	18	.00	7.6	.00	.00	.00		
19			.00	32	18	.00	14	.00	.00	.00		
20			.00	31	18	.00	18	.00	.00	.00		
21			.00	29	18	.00	22	.00	.00	.00		
22			.00	30	18	.00	22	.00	.00	.00		
23			.00	38	19	.00	22	.00	.00	.00		
24			.00	34	17	.00	21	.00	.00	.00		
25			7.1	29	7.3	.00	15	.00	.00	.00		
26			3.5	28	6.6	.00	1.2	.00	.00	.00		
27			2.8	24	6.5	.00	.00	.00	.00	.00		
28			7.1	20	6.6	.00	.00	.00	.00	.00		
29			14	13	13	.00	.00	.00	.00	.00		
30			14	8.6	15	.00	.00	.00	.00	.00		
31			15	---	1.7	---	.00	.00	---	.00		
TOTAL			63.50	716.6	320.5	1.66	143.90	.00	.00	.00		
MEAN			2.05	23.9	10.3	.055	4.64	.000	.000	.000		
MAX			15	38	21	.67	22	.00	.00	.00		
MIN			.00	8.6	1.7	.00	.00	.00	.00	.00		
AC-FT			126	1420	636	3.3	285	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 2,470

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06149500 BATTLE CREEK AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'08", long 109°25'20", in SE¼ sec.4, T.1, R.26 W., third meridian, Hydrologic Unit 10050008, on left bank 600 ft (183 m) north of international boundary in Saskatchewan, 8 mi (13 km) upstream from Woodpile Coulee, 30 mi (48 km) north of Chinook, MT, and at mile 69.8 (112.3 km).

DRAINAGE AREA.--931 mi^2 (2,411 km^2).

PERIOD OF RECORD.--April 1917 to current season (seasonal records only most seasons). Monthly discharge only for March 1918 and March 1928, published in WSP 1309.

REVISED RECORDS.--WSP 1389: 1935(M), 1936, 1937-38(M). WSP 1729: 1924, 1926, 1932 (monthly figures only), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,729.8 ft (832.04 m) above mean sea level (International Boundary Survey datum, adjustment of 1928).

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, diversions for irrigation of about 9,500 acres (38.4 km^2), and return flow from irrigated areas. Water may be diverted into or from Frenchman River basin through Cypress Lake.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,820 ft^3/s (165 m^3/s) Apr. 15, 1952, gage height, 10.56 ft (3.219 m), reduced by overflow into Lodge Creek basin; no flow at times most season.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 133 ft^3/s (3.76 m^3/s) Mar. 21, gage height, 4.47 ft (1.361 m), backwater from ice; maximum gage height, 4.49 ft (1.368 m) Mar. 18 (backwater from ice); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	11	10	45	8.2	20	.35	.00	13	
2			.00	14	7.5	30	8.6	19	.28	.00	13	
3			.00	13	13	25	8.0	14	.18	.00	13	
4			.00	9.5	13	21	8.6	9.9	.11	.00	12	
5			.00	12	7.7	20	8.9	9.7	.07	.00	---	
6			.00	17	4.6	22	9.0	10	.04	.00	---	
7			.00	15	3.2	18	9.9	9.3	.04	.00	---	
8			.00	16	2.2	17	8.5	9.3	.04	.00	---	
9			.00	20	1.6	22	6.5	7.8	.00	.00	---	
10			.00	30	1.2	25	6.0	5.5	.00	.21	---	
11			.00	21	.92	18	5.3	4.2	.00	2.5	---	
12			.00	22	.78	12	4.6	3.0	.00	2.7	---	
13			.00	21	1.8	15	3.5	2.4	.00	3.6	---	
14			.00	16	1.5	11	2.9	2.0	.00	4.7	---	
15			3.0	43	1.3	6.9	2.3	1.2	.00	4.2	---	
16			12	57	.99	5.5	1.9	1.3	.00	4.6	---	
17			11	54	2.6	4.0	1.7	.85	.00	4.7	---	
18			25	37	15	8.0	1.5	.53	.00	4.9	---	
19			62	24	7.6	11	1.2	.39	.00	7.2	---	
20			73	18	3.1	11	1.0	.32	.00	7.8	---	
21			74	15	4.5	8.5	3.8	1.3	.00	7.8	---	
22			37	16	3.9	7.1	3.6	2.4	.00	11	---	
23			20	13	11	6.9	2.1	1.8	.00	11	---	
24			10	24	12	6.6	11	1.4	.00	9.9	---	
25			5.6	19	19	5.6	10	1.1	.00	9.7	---	
26			4.4	16	24	4.8	8.7	1.2	.00	10	---	
27			18	16	67	5.8	4.9	.78	.00	11	---	
28			16	10	69	6.5	2.6	.57	.00	9.7	---	
29			11	10	52	6.0	1.6	.42	.00	13	---	
30			12	10	65	7.1	.85	.28	.00	13	---	
31			11	---	53	---	14	.28	---	13	---	
TOTAL			405.00	619.5	479.99	412.3	171.25	142.22	1.11	166.21	---	
MEAN			13.1	20.7	15.5	13.7	5.52	4.59	.037	5.36	---	
MAX			74	57	69	45	14	20	.35	13	---	
MIN			.00	9.5	.78	4.0	.85	.28	.00	.00	---	
AC-FT			803	1230	952	818	340	282	2.2	330	---	

THE SEASON MARCH TO OCTOBER AC-FT 4,760

06151000 LYONS CREEK AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'20", long 109°13'50", in SW¼ sec.1, T.1, R.25 W., third meridian, Hydrologic Unit 10050008, on right bank 0.3 mi (0.5 km) north of international boundary, 8 mi (13 km) south of Arena, Saskatchewan, 28 mi (45 km) north of Chinook, Mt, and at mile 20.5 (33.0 km).

DRAINAGE AREA.--66.7 mi^2 (172.8 km^2).

PERIOD OF RECORD.--March 1927 to current season (seasonal records only in most seasons). Monthly discharge only for February, March 1934, published in WSP 1309. Prior to March 1962, published as Lyons Coulee at international boundary.

REVISED RECORDS.--WSP 1389: 1929(M), 1936, 1937(M), 1939, 1940-41(M), 1946(M). WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,800 ft (853 m), from international boundary map. Prior to Oct. 19, 1935, nonrecording gages at site 0.5 mi (0.8 km) south of international boundary at different datum. Oct. 19, 1935, to Oct. 31, 1940, nonrecording gage at site 1.2 mi (1.9 km) north of international boundary at different datum. Nov. 1, 1940, to Aug. 4, 1958, nonrecording gages at sites within 300 ft (91 m) of present site at present datum.

REMARKS.--Records good. Natural flow of stream affected by small stock-water and irrigation dams above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,200 ft^3/s (34.0 m^3/s) July 6, 1955, gage height, 8.38 ft (2.554 m), from floodmark, from rating curve extended above 600 ft^3/s (17.0 m^3/s); no flow most of each season.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 82 ft^3/s (2.33 m^3/s) Mar. 20, gage height, 3.38 ft (1.031 m); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.78	.00	.00	.00	.00	.00	.00	.00	
2			.00	.67	.00	.00	.00	.00	.00	.00	.00	
3			.00	.53	.00	.00	.00	.00	.00	.00	.00	
4			.00	.39	.00	.00	.00	.00	.00	.00	.00	
5			.00	.25	.00	.00	.00	.00	.00	.00	.00	
6			.00	.21	.00	.00	.00	.00	.00	.00	---	
7			.00	.14	.00	.00	.00	.00	.00	.00	---	
8			.00	.07	.00	.00	.00	.00	.00	.00	---	
9			.00	.04	.00	.00	.00	.00	.00	.00	---	
10			.00	.04	.00	.00	.00	.00	.00	.00	---	
11			.00	.42	.00	.00	.00	.00	.00	.00	---	
12			.00	1.6	.00	.00	.00	.00	.00	.00	---	
13			.00	.92	.00	.00	.00	.00	.00	.00	---	
14			.00	.57	.00	.00	.00	.00	.00	.00	---	
15			12	.39	.00	.00	.00	.00	.00	.00	---	
16			5.3	.21	.00	.00	.00	.00	.00	.00	---	
17			5.3	.00	.00	.00	.00	.00	.00	.00	---	
18			11	.00	.00	.00	.00	.00	.00	.00	---	
19			15	.00	.00	.00	.00	.00	.00	.00	---	
20			36	.00	.00	.00	.00	.00	.00	.00	---	
21			45	.00	.00	.00	.00	.00	.00	.00	---	
22			33	.00	.00	.00	.00	.00	.00	.00	---	
23			25	.00	.00	.00	.00	.00	.00	.00	---	
24			20	.00	.00	.00	.00	.00	.00	.00	---	
25			11	.00	.00	.00	.00	.00	.00	.00	---	
26			7.3	.00	.00	.00	.00	.00	.00	.00	---	
27			3.5	.00	.00	.00	.00	.00	.00	.00	---	
28			2.4	.00	.00	.00	.00	.00	.00	.00	---	
29			1.7	.00	.00	.00	.00	.00	.00	.00	---	
30			1.3	.00	.00	.00	.00	.00	.00	.00	---	
31			.92	---	.00	---	.00	.00	---	.00	---	
TOTAL			235.72	7.23	.00	.00	.00	.00	.00	.00	---	
MEAN			7.60	.24	.000	.000	.000	.000	.000	.000	---	
MAX			45	1.6	.00	.00	.00	.00	.00	.00	---	
MIN			.00	.00	.00	.00	.00	.00	.00	.00	---	
AC-FT			468	14	.00	.00	.00	.00	.00	.00	---	

THE SEASON MARCH TO OCTOBER AC-FT 482

06154400 PEOPLES CREEK NEAR HAYS, MT

LOCATION.--Lat 48°13'35", long 108°42'40", in SW¼ sec.35, T.29 N., R.23 E., Blaine County, Hydrologic Unit 10050009, on right bank 45 ft (14 m) downstream from bridge on State Highway 376, 2.5 mi (4.0 km) downstream from Myrtle Creek, 16.4 mi (26.4 km) north of Hays, and at mile 47.2 (75.9 km).

DRAINAGE AREA.--220 mi^2 (570 km^2).

PERIOD OF RECORD.--December 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,714.10 ft (827.258 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except those for winter period and those for June 30 to Sept. 30, which are poor. Some storage in numerous stock ponds and diversions for irrigation of about 1,300 acres (5.26 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--13 years (water years 1968-80), 19.6 ft^3/s (0.555 m^3/s), 14,200 acre-ft/yr (17.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,460 ft^3/s (240 m^3/s) June 8, 1972, gage height, 15.03 ft (4.581 m), from floodmark, from rating curve extended above 490 ft^3/s (13.9 m^3/s) on basis of slope-area measurment of peak flow; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined, no peak above base of 100 ft^3/s (2.83 m^3/s); maximum gage height, 6.43 ft (1.960 m) Mar. 12 (backwater from ice); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.24	4.5	1.0	.10	10	7.4	2.2	1.8	.00	.00	.00
2	.11	.19	6.0	1.0	1.0	15	8.0	2.9	1.8	.00	.00	.00
3	.11	.19	8.0	.90	6.0	15	10	3.2	1.3	.00	.00	.00
4	.10	.24	10	.65	5.0	10	13	2.2	.90	.00	.00	.00
5	.10	.45	8.5	.45	4.5	9.0	12	1.8	.45	.00	.00	.00
6	.12	.50	9.0	.30	4.0	8.0	11	1.5	.45	.00	.00	.00
7	.13	.75	8.5	.20	3.0	8.0	12	1.2	1.3	.00	.00	.00
8	.14	1.0	8.5	.10	4.0	10	12	1.3	.60	.00	.00	.00
9	.14	.60	8.0	.00	4.5	15	12	1.4	.15	.00	.00	.00
10	.13	.52	8.5	.00	4.0	15	12	1.3	.03	.00	.00	.00
11	.14	.52	8.0	.00	5.0	20	15	1.5	.00	.00	.00	.00
12	.15	.90	7.0	.05	4.5	25	23	2.6	.00	.00	.00	.00
13	.12	1.0	6.5	.10	3.0	30	19	2.2	1.7	.00	.00	.00
14	.13	1.5	7.0	.20	2.0	35	16	1.7	.79	.00	.00	.12
15	.13	2.5	5.0	.50	2.5	30	13	1.1	.06	.00	.00	.12
16	.12	2.5	4.0	.40	3.0	25	11	.79	.00	.00	.00	.12
17	.09	3.5	4.5	.30	3.0	30	15	.60	.00	.00	.00	.15
18	.12	3.0	5.0	.25	3.0	30	14	.52	.00	.00	.00	.24
19	.12	2.0	5.0	.20	3.5	35	11	.37	.00	.00	.00	.30
20	.15	3.0	4.5	.20	3.0	25	10	.30	.00	.00	.00	.19
21	.19	4.0	4.0	.30	2.5	20	9.0	.30	.00	.00	.00	.15
22	.19	4.5	4.0	.40	2.5	15	9.0	.19	.00	.00	.00	.12
23	.24	5.0	4.5	.90	3.0	10	8.6	.15	.00	.00	.00	.09
24	.19	5.0	4.0	.70	5.0	9.0	8.0	.19	.03	.00	.00	.09
25	.24	4.5	3.0	.40	8.5	8.5	5.9	1.8	.15	.00	.03	.09
26	.19	4.5	3.5	.30	10	8.0	3.8	2.4	.60	.00	.09	.12
27	1.2	4.5	3.0	.20	20	10	3.4	3.6	.30	.00	.12	.15
28	.79	4.0	2.5	.00	15	12	2.9	3.4	.15	.00	.12	.19
29	.30	4.0	2.0	.00	10	11	2.9	3.2	.00	.00	.12	.24
30	.15	3.5	1.5	.00	---	10	2.4	2.6	.00	.00	.09	.19
31	.15	---	1.0	.00	---	9.3	---	2.1	---	.00	.03	---
TOTAL	6.28	68.60	169.0	10.00	145.10	522.8	312.3	50.61	12.56	.00	.60	2.67
MEAN	.20	2.29	5.45	.32	5.00	16.9	10.4	1.63	.42	.000	.019	.089
MAX	1.2	5.0	10	1.0	20	35	23	3.6	1.8	.00	.12	.30
MIN	.09	.19	1.0	.00	.10	8.0	2.4	.15	.00	.00	.00	.00
AC-FT	12	136	335	20	288	1040	619	100	25	.00	1.2	5.3

CAL YR 1979 TOTAL 16831.50 MEAN 46.1 MAX 1000 MIN .04 AC-FT 33390
WTR YR 1980 TOTAL 1300.52 MEAN 3.55 MAX 35 MIN .00 AC-FT 2580

06154410 LITTLE PEOPLES CREEK NEAR HAYS, MT

LOCATION.--Lat 47°57'59", long 108°39'37", in SE¼SE¼NW¼ sec.32, T.26 N., R.24 E., Blaine County, Hydrologic Unit 10050009, on right bank 0.5 mi (0.8 km) upstream from entrance to Mission Canyon, 2 mi (3 km) southeast of Hays, and at mile 23.1 (37.2 km).

DRAINAGE AREA.--11.8 mi^2 (30.6 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1972 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,760 ft (1,150 m), from topographic map. August 1972, to June 24, 1976, gage at present site at datum 10.00 ft (3.048 m) higher.

REMARKS.--Water-discharge records fair except those July 2 to Sept. 30, which are poor. No known regulation or diversion above station.

AVERAGE DISCHARGE.--8 years, 6.06 ft^3/s (0.172 m^3/s), 4,390 acre-ft/yr (5.41 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 576 ft^3/s (16.3 m^3/s) May 25, 1974, gage height, 4.57 ft (1.393 m), from floodmark, at site and datum then in use, from rating curve extended above 44 ft^3/s (1.25 m^3/s) on basis of slope-area measurement of peak flow; minimum daily, 1.5 ft^3/s (0.042 m^3/s) Sept. 24-29, Dec. 9, 1977, Feb. 15, 1979, and on many days during September 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6.6 ft^3/s (0.19 m^3/s) May 5, 6, gage height, 10.4 ft (3.191 m), no peaks above base of 50 ft^3/s (1.42 m^3/s); maximum gage height, 10.70 ft (3.261 m) July 21, 22 (backwater from debris); minimum daily discharge, 1.5 ft^3/s (0.042 m^3/s) on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	2.5	2.2	2.2	1.7	2.3	2.2	3.7	2.7	1.7	1.7	1.7
2	2.4	2.5	2.2	2.2	1.8	2.3	2.2	3.9	2.7	1.6	1.7	1.7
3	2.4	2.3	2.2	2.2	1.8	2.3	2.2	3.9	2.7	1.7	1.7	1.7
4	2.4	2.5	2.2	2.2	2.0	2.2	2.3	3.9	2.3	1.6	1.9	1.6
5	2.4	2.5	2.2	2.2	2.0	2.3	2.5	4.2	2.3	1.7	1.9	1.6
6	2.4	2.5	2.2	2.1	2.0	2.3	2.5	4.2	2.3	1.7	1.7	1.6
7	2.4	2.5	2.2	2.1	2.2	2.3	2.5	3.9	2.3	1.7	1.7	1.6
8	2.4	2.5	2.2	2.0	2.2	2.3	2.5	3.9	2.3	1.7	1.7	1.6
9	2.3	2.5	2.2	2.0	2.2	2.3	2.5	3.9	2.3	2.0	1.7	1.6
10	2.3	2.5	2.2	2.1	2.2	2.3	2.5	3.9	2.3	1.7	1.8	1.6
11	2.3	2.5	2.2	2.2	2.0	2.3	2.5	3.7	2.3	1.7	1.7	1.6
12	2.3	2.5	2.2	2.2	2.0	2.3	2.5	3.7	2.3	1.7	1.7	1.6
13	2.3	2.5	2.0	2.2	2.0	2.3	2.7	3.5	2.3	1.7	1.7	1.6
14	2.3	2.5	2.0	2.2	1.8	2.3	2.7	3.3	2.3	1.8	1.7	1.5
15	2.3	2.3	1.9	2.2	1.8	2.3	2.7	3.5	2.3	1.7	1.7	1.5
16	2.3	2.2	1.8	2.2	2.0	2.3	2.9	3.5	2.2	1.6	1.7	1.5
17	2.3	2.2	1.8	2.2	2.0	2.3	2.9	3.1	2.3	1.6	2.0	1.5
18	2.5	2.2	1.8	2.2	2.0	2.3	2.9	3.1	2.2	1.7	1.7	1.6
19	2.5	2.2	1.7	1.8	2.2	2.3	2.9	3.3	2.2	1.7	1.7	1.6
20	2.7	2.2	1.7	1.8	2.3	2.3	3.1	3.3	2.2	1.7	1.7	1.5
21	2.7	2.2	1.6	1.8	2.3	2.3	3.1	3.3	2.2	1.8	1.7	1.5
22	2.7	2.2	1.7	1.8	2.5	2.3	3.3	3.1	2.2	1.8	1.7	1.5
23	2.5	2.2	1.8	1.8	2.5	2.3	3.7	3.1	2.0	1.7	1.7	1.5
24	2.5	2.2	1.8	2.0	2.5	2.3	3.9	2.9	2.0	1.7	1.7	1.5
25	2.5	2.2	1.8	2.0	2.5	2.3	3.9	3.3	2.0	1.7	1.7	1.5
26	2.5	2.2	1.8	1.9	2.5	2.3	3.9	3.1	2.0	1.7	1.7	1.5
27	2.5	2.2	1.8	1.8	2.5	2.3	3.9	3.1	2.0	1.7	1.7	1.5
28	2.5	2.2	2.0	1.8	2.5	2.3	3.7	3.1	2.0	1.7	1.6	1.5
29	2.5	2.2	2.0	1.8	2.3	2.3	3.9	2.9	1.8	1.7	1.6	1.5
30	2.5	2.2	2.0	1.8	---	2.3	3.9	2.9	1.8	1.7	1.6	1.5
31	2.5	---	2.0	1.8	---	2.2	---	2.9	---	1.7	1.7	---
TOTAL	75.5	70.1	61.4	62.8	62.3	71.1	88.9	107.1	66.8	52.9	53.2	46.8
MEAN	2.44	2.34	1.98	2.03	2.15	2.29	2.96	3.45	2.23	1.71	1.72	1.56
MAX	2.7	2.5	2.2	2.2	2.5	2.3	3.9	4.2	2.7	2.0	2.0	1.7
MIN	2.3	2.2	1.6	1.8	1.7	2.2	2.2	2.9	1.8	1.6	1.6	1.5
AC-FT	150	139	122	125	124	141	176	212	132	105	106	93

CAL YR 1979 TOTAL 2466.6 MEAN 6.76 MAX 58 MIN 1.5 AC-FT 4890
WTR YR 1980 TOTAL 818.9 MEAN 2.24 MAX 4.2 MIN 1.5 AC-FT 1620

06154410 LITTLE PEOPLES CREEK NEAR HAYS, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
DEC 12...	1430	2.2	71	450	8.2	-1.5	3.0	10.6	91	< 1	< 1
MAR 26...	1030	2.3	1	480	8.4	1.0	5.0	10.5	83	< 1	K4
JUN 25...	1130	2.0	1	410	8.0	20.0	12.0	8.9	94	K2	< 1
AUG 27...	1030	1.6	2	470	8.0	19.0	10.0	9.4	95	K5	K6

DATE	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
DEC 12...	250	31	61	24	4.5	.1	1.7	220	34	1.1	.3
MAR 26...	240	18	59	22	2.6	.1	1.5	220	28	.5	.3
JUN 25...	240	63	61	22	3.4	.1	1.4	180	28	.9	.1
AUG 27...	250	40	62	23	2.5	.1	1.4	210	27	.7	.3

DATE	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)
DEC 12...	10	269	.37	1.60	--	--	--	--	--
MAR 26...	8.7	255	.35	1.58	.07	.00	.43	.43	.01
JUN 25...	10	235	.32	1.27	.11	.00	.59	.59	.00
AUG 27...	10	253	.34	1.09	.28	.02	.22	.24	.02

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
DEC 12...	1430	11	3	0	< 1	20	0	< 1	10
MAR 26...	1030	4	2	0	< 1	20	0	< 1	20
JUN 25...	1130	3	4	0	< 1	20	0	< 1	0
AUG 27...	1030	3	2	0	< 1	40	0	< 1	0

06154410 LITTLE PEOPLES CREEK NEAR HAYS, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
DEC 12...	0	0	0	60	< 10	6	0	0	3
MAR 26...	20	0	0	50	< 10	0	0	10	2
JUN 25...	10	4	2	60	< 10	2	3	10	3
AUG 27...	0	4	2	70	< 10	0	2	0	2

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
DEC 12...	.1	.3	4	0	0	0	--	< 3
MAR 26...	.0	.0	0	0	1	1	20	< 3
JUN 25...	.2	.0	6	4	1	1	10	< 3
AUG 27...	.4	.2	2	0	1	1	10	< 3

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
MAR 26...	1030	5.0	2.3	6	.04
JUN 25...	1130	12.0	2.0	15	.08
AUG 27...	1030	10.0	1.6	10	.04

06156000 WHITEWATER CREEK NEAR INTERNATIONAL BOUNDARY

LOCATION.--Lat 48°57'10", long 107°51'40", in NW¼ sec.24, T.37 N., R.29 E., Phillips County, Hydrologic Unit 10050011, on left bank 500 ft (152 m) downstream from North Fork, 3.3 mi (5.3 km) south of international boundary, 11 mi (18 km) north of Loring, MT and 14 mi (23 km) south of Orkney, Saskatchewan.

DRAINAGE AREA.--458 mi^2 (1,186 km^2).

PERIOD OF RECORD.--Water years 1977 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
MAR												
19...	1215	12	1	546	6.8	2.5	1.5	84	4	14	12	79
21...	1215	2.4	72	632	7.3	2.0	.5	120	23	19	17	89
APR												
04...	1015	.84	0	1450	7.9	3.0	1.0	280	0	43	41	230

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
MAR												
19...	3.7	8.5	80	170	12	.0	5.9	353	.48	11.4	.68	.18
21...	3.6	8.7	94	190	9.5	.0	7.4	398	.54	2.58	.02	.18
APR												
04...	6.0	7.3	280	420	20	.1	11	942	1.28	2.14	.14	.01

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
MAR							
19...	1215	0	< 1	230	< 1	10	< 10
21...	1215	1	< 1	230	< 1	0	< 10
APR							
04...	1015	1	< 1	290	< 1	0	< 10

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR							
19...	350	< 10	90	.1	0	0	10
21...	310	< 10	120	.2	0	0	4
APR							
04...	170	24	140	.0	0	0	< 3

06156500 BELANGER CREEK DIVERSION CANAL NEAR VIDORA, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°29'39", long 109°21'50", in NW¼ sec.19, T.6, R.25 W., third meridian, Hydrologic Unit 10050013, on left bank 0.3 mi (0.5 km) downstream from diversion weir, 12 mi (19 km) north of Vidora, and at mile 0.3 (0.5 km).

PERIOD OF RECORD.--March 1946 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 3,200 ft (975 m), from Cypress Lake elevation.

REMARKS.--Records fair. Canal diverts water from right bank of Belanger Creek in SW¼ sec.30, T.6, R.25 W., third meridian, for storage in Cypress Lake.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 598 ft^3/s (16.9 m^3/s) May 7, 1975; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	11	.00	4.2	.00	.00	.00	.00		
2			.00	49	.00	4.3	.00	.00	.00	.00		
3			.00	27	.00	8.2	.00	.00	.00	.00		
4			.00	27	.00	7.3	.00	.00	.00	.00		
5			.00	57	.00	5.3	.00	.00	.00	.00		
6			.00	150	.00	5.1	.00	.00	.00	.00		
7			.00	248	.00	1.7	.00	.00	.00	.00		
8			.00	142	.00	.00	.00	.00	.00	.00		
9			.00	87	.00	.00	.00	.00	.00	.00		
10			.00	119	.00	.00	.00	.00	.00	.00		
11			.00	72	.00	.00	.00	.00	.00	.00		
12			.00	60	2.0	.00	.00	.00	.00	.00		
13			.00	52	4.9	.00	.00	.00	.00	.00		
14			.00	72	5.0	.00	.00	.00	.00	.00		
15			.00	68	3.2	.00	.00	.00	.00	.00		
16			.00	58	3.0	.00	.00	.00	.00	.00		
17			.00	46	3.2	.00	.00	.00	.00	.00		
18			.00	30	3.5	.00	.00	.00	.00	.00		
19			.00	11	3.4	.00	.00	.00	.00	.00		
20			.00	8.5	3.5	.00	.00	.00	.00	.00		
21			.00	2.8	3.5	.00	.00	.00	.00	.00		
22			.00	.18	3.2	.00	.00	.00	.00	.00		
23			.00	.00	4.8	.00	.00	.00	.00	.00		
24			.00	.00	4.4	.00	.00	.00	.00	.00		
25			.00	.00	11	.00	.00	.00	.00	.00		
26			.00	.00	6.5	.00	.00	.00	.00	.00		
27			.00	.00	5.4	.00	.00	.00	.00	.00		
28			.00	.00	5.1	.00	.00	.00	.00	.00		
29			.00	.00	5.5	.00	.00	.00	.00	.00		
30			.11	.00	4.9	.00	.00	.00	.00	.00		
31			3.5	---	4.3	---	.00	.00	---	.00		
TOTAL			3.61	1397.48	90.30	36.10	.00	.00	.00	.00		
MEAN			.12	46.6	2.91	1.20	.000	.000	.000	.000		
MAX			3.5	248	11	8.2	.00	.00	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			7.2	2770	179	72	.00	.00	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 3,030

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06157500 CYPRESS LAKE EAST OUTFLOW CANAL NEAR VIDORA, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°29'12", long 109°21'08", in SE¼ sec.19, T.6, R.25 W., third meridian, Hydrologic Unit 10050013, on right bank 500 ft (152 m) upstream from Belanger Creek, 12.3 mi (19.8 km) north of Vidora, and at mile 346.2 (557.0 km).

PERIOD OF RECORD.--April to October 1940, April 1943 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 3,180 ft (969 m), from topographic map. Prior to Sept. 26, 1946, at datum 2.24 ft (0.683 m) higher and Sept. 26, 1946, to May 18, 1950, at datum 1.54 ft (0.469 m) higher.

REMARKS.--Records fair except those for winter period, which are poor. Canal diverts water from Cypress Lake for irrigation in Frenchman River basin in Saskatchewan.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 202 ft^3/s (5.72 m^3/s) Apr. 19, 1952; no flow at times most seasons.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			1.1	1.1	.85	.07	25	4.7	.32	.42		
2			1.1	1.1	.64	16	24	5.0	.35	.85		
3			1.1	1.1	.57	90	20	4.3	.35	1.1		
4			1.1	.99	.78	100	18	2.2	.39	1.1		
5			1.1	.92	.88	100	15	1.5	.39	1.2		
6			1.1	.85	.95	100	15	1.1	.42	1.2		
7			1.1	.74	1.3	100	14	.99	.49	1.2		
8			1.1	.64	1.2	99	11	.64	.35	1.4		
9			1.1	.53	1.1	98	9.8	.57	.32	1.4		
10			1.1	1.0	1.0	96	8.5	.42	.32	1.3		
11			1.1	2.3	.95	100	7.1	.35	.28	1.4		
12			1.1	7.8	1.0	104	5.9	.28	.25	1.5		
13			1.1	13	.53	104	4.7	.32	.25	1.6		
14			1.1	15	.49	102	4.2	.39	.25	1.6		
15			1.1	13	.42	98	3.7	.35	.25	1.6		
16			1.1	6.3	.35	94	3.5	.35	.28	1.6		
17			1.1	2.8	.32	93	2.6	.39	.28	1.6		
18			1.1	2.2	.32	93	3.2	.28	.53	1.6		
19			.78	2.4	.25	93	43	.32	.42	1.6		
20			.71	2.8	.25	93	60	.32	.35	1.5		
21			.85	2.3	9.0	93	64	.21	.32	1.6		
22			.99	2.1	83	94	66	.21	.35	1.9		
23			1.1	2.2	89	100	69	.25	.32	1.8		
24			1.3	2.1	85	101	69	.21	.42	1.7		
25			1.4	2.1	92	99	67	.18	.42	1.7		
26			1.4	2.2	97	100	63	.25	.39	2.6		
27			1.3	1.5	95	103	58	.28	.35	1.5		
28			1.3	.78	52	7.7	55	.32	.32	1.4		
29			1.2	.67	.57	.60	43	.42	.39	1.4		
30			1.1	.67	.14	13	10	.46	.42	1.4		
31			1.1	---	.11	---	6.6	.32	---	1.4		
TOTAL			34.33	93.19	616.97	2484.37	868.8	27.88	10.54	45.17		
MEAN			1.11	3.11	19.9	82.8	28.0	.90	.35	1.46		
MAX			1.4	15	97	104	69	5.0	.53	2.6		
MIN			.71	.53	.11	.07	2.6	.18	.25	.42		
AC-FT			68	185	1220	4930	1720	55	21	90		

THE SEASON MARCH TO OCTOBER AC-FT 8,290

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06158500 EASTEND CANAL AT EASTEND, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°30'20", long 108°51'05", in NW¼ sec.25, T.6, R.22 W., third meridian, Hydrologic Unit 10050013, on left bank 100 ft (30 m) downstream from headgate, 1.5 mi (2.4 km) west of Eastend, and at mile 300.6 (483.7 km).

PERIOD OF RECORD.--March 1937 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,999.24 ft (914.168 m) above mean sea level (Geodetic Surveys of Canada datum). Prior to Sept. 19, 1949, at sites within 1 mi (2 km) downstream at different datums.

REMARKS.--Records fair. No gage-height record Mar. 1 to Apr. 21 and Sept. 3 to Oct. 31. Canal diverts water from Eastend Reservoir in NW¼ sec.25, T.6, R.22 W., third meridian, on right bank for irrigation of about 3,100 acres (12.5 km^2) in the Frenchman River basin in Saskatchewan.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 84 ft^3/s (2.38 m^3/s) May 18, 1976; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	61	.00	51	.00	.00		
2			.00	.00	.00	63	.00	50	.00	.00		
3			.00	.00	.00	63	.00	48	.00	.00		
4			.00	.00	.00	63	.00	43	.00	.00		
5			.00	.00	.00	62	.00	41	.00	.00		
6			.00	.00	.00	49	.00	40	.00	.00		
7			.00	.00	.00	35	.00	33	.00	.00		
8			.00	.00	.00	23	.00	25	.00	.00		
9			.00	.00	.00	14	.00	23	.00	.00		
10			.00	.00	.00	5.6	.00	20	.00	.00		
11			.00	.00	.00	9.5	.00	18	.00	.00		
12			.00	.00	.00	8.0	.00	11	.00	.00		
13			.00	.00	39	1.3	.00	.00	.00	.00		
14			.00	.00	58	.32	.00	.00	.00	.00		
15			.00	.00	61	.00	41	.00	.00	.00		
16			.00	.00	62	.00	61	.00	.00	.00		
17			.00	.00	63	.00	61	.00	.00	.00		
18			.00	.00	63	.00	62	.00	.00	.00		
19			.00	.00	65	.00	63	.00	.00	.00		
20			.00	.00	67	.00	63	.00	.00	.00		
21			.00	.00	68	.00	62	.00	.00	.00		
22			.00	.00	68	.00	62	.00	.00	.00		
23			.00	.00	68	.00	63	.00	.00	.00		
24			.00	.00	70	.00	60	.00	.00	.00		
25			.00	.00	71	.00	56	.00	.00	.00		
26			.00	.00	70	.00	55	.00	.00	.00		
27			.00	.00	70	.00	55	.00	.00	.00		
28			.00	.00	69	.00	54	.00	.00	.00		
29			.00	.00	64	.00	53	.00	.00	.00		
30			.00	.00	61	.00	52	.00	.00	.00		
31			.00	---	60	---	52	.00	---	.00		
TOTAL			.00	.00	1217.00	457.72	975.00	403.00	.00	.00		
MEAN			.000	.000	39.3	15.3	31.5	13.0	.000	.000		
MAX			.00	.00	71	63	63	51	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			.00	.00	2410	908	1930	799	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 6,060

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06159500 FRENCHMAN RIVER BELOW EASTEND RESERVOIR, NEAR EASTEND, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°30'54", long 108°50'16", in SE¼ sec.36, T.6, R.22 W., third meridian, Hydrologic Unit 10050013, on left bank 0.8 mi (1.3 km) west of Eastend, 1.7 mi (2.7 km) downstream from Eastend Reservoir, and at mile 298.8 (480.8 km).

DRAINAGE AREA.--637 mi^2 (1,650 km^2), of which 159 mi^2 (412 km^2) in Cypress Lake basin is generally noncontributing.

PERIOD OF RECORD.--April 1909 to October 1916, March 1918 to May 1931, September 1935, March to July 1936, and April 1939 to current season (seasonal records only). Monthly discharge only for some periods, published in WSP 1309. Published as "at East End" 1909-16. Records prior to April 1939, not equivalent owing to diversion in Eastend Canal since 1937.

REVISED RECORDS.--WSP 1729: 1919, 1941 (monthly figures only), drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,960 ft (902 m), from topographic map. Prior to July 1941, nonrecording gages at several sites within 1.5 mi (2.4 km) of present site at various datums.

REMARKS.--Records good except those for winter period, which are poor. Natural flow of stream affected by storage reservoirs, diversions for irrigation, and return flow from irrigated areas. Water may be diverted into or from Battle Creek basin through Cypress Lake.

COOPERATION.-This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft^3/s (326 m^3/s) Apr. 16, 1952, gage height, 19.10 ft (5.822 m), from floodmark in gage house; no flow at times.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 351 ft^3/s (9.94 m^3/s) Apr. 8, gage height, 3.71 ft (1.131 m); minimum, 2.5 ft^3/s (0.071 m^3/s) Sept. 24, gage height, 0.94 ft (0.287 m).

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			10	9.9	15	8.6	14	8.6	8.4	6.1		
2			10	11	15	8.4	14	8.5	7.6	6.1		
3			11	82	14	8.3	14	8.3	6.6	5.9		
4			11	158	14	8.7	14	7.8	6.7	6.7		
5			11	76	14	9.0	14	7.3	6.2	6.8		
6			11	35	14	31	14	6.9	5.6	7.7		
7			11	128	14	56	13	6.5	5.3	7.8		
8			11	341	14	63	13	5.8	5.0	8.5		
9			11	239	13	65	13	5.4	4.9	8.9		
10			11	185	13	86	13	5.3	4.5	7.0		
11			11	165	13	93	12	5.3	4.6	8.3		
12			13	130	13	87	11	16	4.7	9.7		
13			14	113	13	100	11	7.7	5.0	12		
14			15	81	13	102	11	7.2	4.9	12		
15			16	67	12	98	11	6.7	5.5	13		
16			17	65	12	95	10	6.1	6.5	14		
17			18	65	12	91	10	6.5	7.2	14		
18			19	63	11	87	9.7	5.6	8.1	15		
19			20	61	11	85	9.3	5.1	7.9	15		
20			26	48	10	83	8.9	4.8	7.9	15		
21			30	40	10	81	8.6	4.6	7.8	17		
22			22	32	9.6	82	8.4	4.5	7.9	17		
23			23	26	9.0	61	8.5	4.2	7.6	18		
24			16	21	8.8	13	8.4	4.1	5.8	17		
25			32	18	8.9	14	8.4	3.8	4.4	17		
26			42	17	8.7	14	8.5	3.9	4.9	18		
27			33	17	8.7	15	9.3	3.8	5.3	17		
28			25	16	8.7	14	8.9	4.0	5.7	16		
29			10	16	9.0	14	8.8	5.5	6.1	17		
30			9.3	15	9.0	14	8.5	7.2	5.9	17		
31			9.1	---	8.8	---	8.6	7.7	---	17		
TOTAL			528.4	2340.9	359.2	1587.0	334.8	194.7	184.5	387.5		
MEAN			17.0	78.0	11.6	52.9	10.8	6.28	6.15	12.5		
MAX			42	341	15	102	14	16	8.4	18		
MIN			9.1	9.9	8.7	8.3	8.4	3.8	4.4	5.9		
AC-FT			1050	4640	712	3150	664	386	366	769		

THE SEASON MARCH TO OCTOBER	AC-FT	11,740

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06161300 VAL MARIE WEST PUMPING CANAL NEAR VAL MARIE, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°22'19", long 107°53'02", in NW¼ sec.7, T.5, R.14 W., third meridian, Hydrologic Unit 10050013, on right bank 50 ft (15 m) downstream from pump discharge outlet, 11 mi (18 km) northwest of Val Marie, and at mile 169.8 (273.2 km).

PERIOD OF RECORD.--March 1963 to current season. July 1950 to current season in reports of Department of the Environment, Canada. Seasonal records only.

GAGE.--Water-stage recorder. Prior to 1956 and subsequent to 1960, records obtained from occasional discharge measurements and records of pump operation.

REMARKS.--Records fair. No gage-height record Mar. 1 to Apr. 27 and Oct. 29-31. Canal diverts water from Val Marie West Reservoir for irrigation of about 2,100 acres (8.50 km^2) in the Frenchman River basin in Saskatchewan.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 31 ft^3/s (0.88 m^3/s) May 30 to June 2, June 7-10, 1975, May 5, 6, 7, 9, 1977; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	3.8	.00	14	.00	.00		
2			.00	.00	.00	.00	.00	14	.00	.00		
3			.00	.00	.00	.00	.00	4.6	.00	.00		
4			.00	.00	1.3	.00	.00	.00	.00	.00		
5			.00	.00	16	.00	.00	2.0	.00	.00		
6			.00	.00	24	.00	.00	.00	.00	.00		
7			.00	.00	29	.00	.00	.00	.00	.00		
8			.00	.00	28	.00	.00	.00	.00	.00		
9			.00	.00	28	.00	12	.00	.00	.00		
10			.00	.00	27	.00	23	.00	.00	.00		
11			.00	.00	28	.00	23	.00	.00	.00		
12			.00	.00	27	.00	14	.00	.00	.00		
13			.00	.00	26	.00	14	.00	.00	.00		
14			.00	.00	26	.00	14	.00	.00	.00		
15			.00	.00	26	.00	22	.00	.00	.00		
16			.00	.00	22	.00	27	.00	.00	.00		
17			.00	.00	25	.00	27	.00	.00	.00		
18			.00	.00	26	.00	27	.00	.00	.00		
19			.00	.00	25	.00	27	.00	.00	.00		
20			.00	.00	24	.00	27	.00	.00	.00		
21			.00	.00	25	.00	28	.00	.00	.00		
22			.00	.00	25	.00	27	.00	.00	.00		
23			.00	.00	24	.00	28	.00	.00	.00		
24			.00	.00	23	.00	26	.00	.00	.00		
25			.00	.00	13	.00	27	.00	.00	.00		
26			.00	.00	13	.00	27	.00	.00	.00		
27			.00	.00	4.1	.00	27	.00	.00	.00		
28			.00	.00	.00	.00	25	.00	.00	.00		
29			.00	.00	.00	.00	26	.00	.00	.00		
30			.00	.00	10	.00	25	.00	.00	.00		
31			.00	---	13	---	18	.00	---	.00		
TOTAL			.00	.00	558.40	3.80	541.00	34.60	.00	.00		
MEAN			.000	.000	18.0	.13	17.5	1.12	.000	.000		
MAX			.00	.00	29	3.8	28	14	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			.00	.00	1110	7.5	1070	69	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 2,260

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06161500 VAL MARIE WEST GRAVITY CANAL NEAR VAL MARIE, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°22'10", long 107°53'06", in SW¼ sec.7, T.5, R.14 W., third meridian, Hydrologic Unit 10050013, on right bank at outlet of Val Marie West Reservoir, 11 mi (18 km) northwest of Val Marie, and at mile 169.5 (272.7 km).

PERIOD OF RECORD.--March 1946 to current season (seasonal records only). Monthly figures only prior to March 1947, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,662.88 ft (811.646 m) above mean sea level (Geodetic Survey of Canada datum). Prior to Sept. 27, 1949, at site 0.5 mi (0.8 km) downstream at different datum.

REMARKS.--Records fair. No gage-height record Mar. 1 to Apr. 27, July 11-15, and Sept. 18 to Oct. 31. Canal diverts water from Val Marie West Reservoir for irrigation of about 1,900 acres (7.69 km^2) in the Frenchman River basin in Saskatchewan. Since 1962, records have been based on gate openings in Val Marie West Dam.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 55 ft^3/s (1.56 m^3/s) July 14, 1972; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	.28	.00	15	.00	.00		
2			.00	.00	.00	.00	.00	15	.00	.00		
3			.00	.00	.00	.00	.00	12	.00	.00		
4			.00	.00	14	.00	.00	11	.00	.00		
5			.00	.00	28	.00	.00	12	.00	.00		
6			.00	.00	38	.00	.00	12	.00	.00		
7			.00	.00	41	.00	.00	7.2	.00	.00		
8			.00	.00	46	.00	.00	.00	.00	.00		
9			.00	.00	51	.00	.00	.00	.00	.00		
10			.00	.00	51	.00	.00	.00	.00	.00		
11			.00	.00	50	.00	17	.00	.00	.00		
12			.00	.00	46	.00	24	.00	.00	.00		
13			.00	.00	42	.00	22	.00	.00	.00		
14			.00	.00	41	.00	25	.00	.00	.00		
15			.00	.00	41	.00	34	.00	.00	.00		
16			.00	.00	39	.00	35	.00	.00	.00		
17			.00	.00	35	.00	36	.00	.00	.00		
18			.00	.00	34	.00	36	.00	.00	.00		
19			.00	.00	33	.00	34	.00	.00	.00		
20			.00	.00	33	.00	25	.00	.00	.00		
21			.00	.00	32	.00	25	.00	.00	.00		
22			.00	.00	29	.00	31	.00	.00	.00		
23			.00	.00	23	.00	31	.00	.00	.00		
24			.00	.00	22	.00	26	.00	.00	.00		
25			.00	.00	17	.00	19	.00	.00	.00		
26			.00	.00	4.4	.00	20	.00	.00	.00		
27			.00	.00	2.2	.00	18	.00	.00	.00		
28			.00	.00	6.7	.00	21	.00	.00	.00		
29			.00	.00	6.9	.00	18	.00	.00	.00		
30			.00	.00	6.7	.00	16	.00	.00	.00		
31			.00	---	2.8	---	15	.00	---	.00		
TOTAL			.00	.00	815.70	.28	528.00	84.20	.00	.00		
MEAN			.000	.000	26.3	.009	17.0	2.72	.000	.000		
MAX			.00	.00	51	.28	36	15	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			.00	.00	1620	.6	1050	167	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 2,830

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06162500 VAL MARIE MAIN CANAL NEAR VAL MARIE, SASKATCHEWAN

(International gaging station)

LOCATION.--Lat 49°18'18", long 107°48'05", in NE¼ sec.15, T.4, R.14 W., third meridian, Hydrologic Unit 10050013, on right bank about 500 ft (152 m) downstream from Val Marie Reservoir, 5.4 mi (8.7 km) northwest of Val Marie, and at mile 156.0 (251.0 km).

PERIOD OF RECORD.--April 1937 to current season (seasonal records only). Prior to April 1947 monthly discharge only, published in WSP 1309. Prior to March 1962, published as Val Marie Canal near Val Marie.

GAGE.--Water-stage recorder. Datum of gage is 2,622.03 ft (799.195 m) above mean sea level (Geodetic Surveys of Canada datum). Prior to May 21, 1963, at several sites within 2 mi (3 km) of present site at different datums.

REMARKS.--Records fair. No gage-height record Mar. 1 to Apr. 27, and Sept. 3 to Oct. 31. Canal diverts water from Val Marie Reservoir for irrigation of about 4,700 acres (19.0 km^2) in the Frenchman River basin in Saskatchewan.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 122 ft^3/s (3.46 m^3/s) May 26, 27, 1976; no flow at times each season.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			.00	.00	.00	.00	.00	50	.00	.00		
2			.00	.00	.00	.00	.00	42	.00	.00		
3			.00	.00	.00	6.3	.00	38	.00	.00		
4			.00	.00	.00	9.7	.00	31	.00	.00		
5			.00	.00	.00	8.6	.00	16	.00	.00		
6			.00	.00	38	7.8	.00	9.4	.00	.00		
7			.00	.00	82	5.6	.00	9.1	.00	.00		
8			.00	.00	98	.21	.00	8.8	.00	.00		
9			.00	.00	97	.04	2.6	8.5	.00	.00		
10			.00	.00	99	.00	55	4.2	.00	.00		
11			.00	.00	103	.00	83	.00	.00	.00		
12			.00	.00	104	.00	97	.00	.00	.00		
13			.00	.00	103	.00	99	.00	.00	.00		
14			.00	.00	101	.00	97	.00	.00	.00		
15			.00	.00	100	.00	90	.00	.00	.00		
16			.00	.00	106	.00	84	.00	.00	.00		
17			.00	.00	109	.00	80	.00	.00	.00		
18			.00	.00	106	.00	74	.00	.00	.00		
19			.00	.00	104	.00	69	.00	.00	.00		
20			.00	.00	101	.00	64	.00	.00	.00		
21			.00	.00	97	.00	62	.00	.00	.00	22	
22			.00	.00	94	.00	67	.00	.00	.00		
23			.00	.00	90	.00	67	.00	.00	.00		
24			.00	.00	86	.00	66	.00	.00	.00		
25			.00	.00	61	.00	66	.00	.00	.00		
26			.00	.00	33	.00	66	.00	.00	.00		
27			.00	.00	33	.00	65	.00	.00	.00		
28			.00	.00	26	.00	63	.00	.00	.00		
29			.00	.00	.00	.00	61	.00	.00	.00		
30			.00	.00	.00	.00	60	.00	.00	.00		
31			.00	---	.00	---	57	.00	---	.00		
TOTAL			.00	.00	1971.00	38.25	1594.60	217.00	.00	.00		
MEAN			.000	.000	63.6	1.28	51.4	7.00	.000	.000		
MAX			.00	.00	109	9.7	99	50	.00	.00		
MIN			.00	.00	.00	.00	.00	.00	.00	.00		
AC-FT			.00	.00	3910	76	3160	430	.00	.00		

THE SEASON MARCH TO OCTOBER AC-FT 7,580

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06163050 FRENCHMAN RIVER BELOW NEWTON LAKE, NEAR VAL MARIE, SASKATCHEWAN

(Formerly published as Frenchman River below Val Marie Reservoir, near Val Marie, Saskatchewan)

(International gaging station)

LOCATION.--Lat 49°18'08", long 107°48'23", in NW¼ sec.15, T.4, R.14 W., third meridian, Hydrologic Unit 10050013, on left bank about 200 ft (61 m) downstream from spillway for Newton Lake, about 7 mi (11 km) northwest of Val Marie, and at mile 156.1 (251.2 km).

DRAINAGE AREA.--1,460 mi^2 (3,780 km^2).

PERIOD OF RECORD.--May 1976 to current season. Seasonal records only. Operated as a low-flow seasonal station May 1976 to October 1976. June to October 1939, July to October 1965, and May 1966 to current season in reports of Department of the Environment, Canada.

GAGE.--Water-stage recorder. Datum of gage is 2,606.11 ft (794.342 m) above mean sea level (Geodetic Survey of Canada datum).

REMARKS.--Records fair. Natural flow of stream affected by storage reservoirs, diversions for irrigation, and return flow from irrigated areas. Water may be diverted into or from Battle Creek basin through Cypress Lake.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,350 ft^3/s (66.6 m^3/s) Apr. 19, 1979, gage height, 12.87 ft (3.923 m); minimum daily, 0.07 ft^3/s (0.002 m^3/s) Aug. 21-24, Sept. 2, 3, 1980.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 59 ft^3/s (0.14 m^3/s) May 2, gage height, 2.75 ft (0.838 m); minimum daily, 0.07 ft^3/s (0.002 m^3/s) Aug. 21-24, Sept. 2, 3.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			11	7.2	18	6.5	2.6	18	7.7	.25		
2			11	1.7	41	3.5	2.7	28	.07	.21		
3			11	3.6	58	2.3	2.3	28	.07	.18		
4			11	5.1	58	2.0	2.2	28	.11	.21		
5			11	6.3	57	2.1	2.3	27	.11	.18		
6			11	5.8	57	1.8	1.9	26	.11	.18		
7			11	5.8	57	1.9	1.6	26	.11	.18		
8			11	6.1	57	1.8	1.5	26	.11	7.5		
9			11	6.2	57	1.6	1.5	10	.11	18		
10			11	6.4	57	1.7	1.4	.18	.14	18		
11			11	6.2	57	2.0	1.6	.14	.14	17		
12			11	6.0	57	2.0	1.5	.18	.14	11		
13			12	6.2	56	2.0	1.4	.14	.14	.71		
14			12	5.8	55	1.7	1.7	.11	.14	.71		
15			12	5.2	55	1.7	1.7	.11	.14	.78		
16			12	4.7	55	1.6	1.7	23	.14	6.2		
17			12	5.2	55	1.7	1.6	47	.11	23		
18			12	5.3	55	1.8	1.5	46	.11	23		
19			12	13	54	2.0	1.6	44	.11	23		
20			13	20	53	2.7	1.9	28	.11	22		
21			13	20	52	2.8	2.5	.07	.14	22		
22			12	18	52	3.4	3.3	.07	.11	22		
23			12	19	48	3.7	2.8	.07	.11	22		
24			13	18	35	3.8	2.8	.07	.18	18		
25			13	18	34	3.4	2.3	17	.14	3.4		
26			12	18	34	3.6	2.3	40	.11	3.3		
27			12	19	33	3.9	2.1	39	.11	3.2		
28			13	19	32	4.2	2.0	39	.11	3.3		
29			13	19	8.0	3.6	1.9	28	.21	3.3		
30			13	19	1.1	2.9	1.4	10	.21	3.3		
31			13	---	2.0	---	1.0	11	---	3.3		
TOTAL			368	318.8	1400.1	79.7	60.6	590.14	11.35	279.39		
MEAN			11.9	10.6	45.2	2.66	1.95	19.0	.38	9.01		
MAX			13	20	58	6.5	3.3	47	7.7	23		
MIN			11	1.7	1.1	1.6	1.0	.07	.07	.18		
AC-FT			730	632	2780	158	120	1170	23	554		

THE SEASON MARCH TO OCTOBER AC-FT 6,160

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

06164000 FRENCHMAN RIVER AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'01", long 107°18'04", in SE¼ sec.5, T.1, R.10 W., third meridian, Hydrologic Unit 10050013, on left bank 50 ft (15 m) north of international boundary, 22 mi (35 km) northeast of Whitewater, Mt, and at mile 76.4 (122.9 km).

DRAINAGE AREA.--2,299 mi^2 (5,954 km^2).

PERIOD OF RECORD.--April 1917 to current season (seasonal records only for most seasons).

REVISED RECORDS.--WSP 1389: 1938(M), 1939-41, 1942(M), 1943, 1950(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder and concrete control since August 1949. Altitude of gage is 2,420 ft (738 m), from topographic map. Prior to June 23, 1937, water-stage recorder at site 0.5 mi (0.8 km) upstream at different datum. June 23, 1937, to October 1952, water-stage recorder at site 100 ft (30 m) downstream at present datum.

REMARKS.--Records good except those for winter period, which are fair. Natural flow of stream affected by several storage reservoirs, diversions for irrigation of about 14,500 acres (58.7 km^2), and return flow from irrigated areas. Water may be diverted into or from Battle Creek basin through Cypress Lake.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,700 ft^3/s (643 m^3/s) Apr. 15, 1952, gage height, 19.90 ft (6.066 m), from floodmark, from rating curve extended above 2,300 ft^3/s (65.1 m^3/s) on basis of slope-area measurement of peak flow; no flow at times most seasons.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 399 ft^3/s (11.3 m^3/s) Apr. 9, gage height, 6.09 ft (1.856 m), backwater from ice; maximum gage height, 6.16 ft (1.878 m) Apr. 3 (backwater from ice); no flow July 16, Oct. 4-23.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1			11	303	18	28	4.0	20	29	.11	3.0	
2			11	281	23	17	3.4	17	22	.07	1.8	
3			10	304	20	8.7	2.4	13	9.1	.04	1.6	
4			9.0	227	18	5.3	2.2	18	7.1	.00	---	
5			8.0	129	41	3.4	1.8	37	5.3	.00	---	
6			7.5	155	49	2.7	1.5	44	5.6	.00	---	
7			7.5	197	46	1.7	1.0	41	5.5	.00	---	
8			7.5	242	51	3.0	.92	35	4.0	.00	---	
9			7.5	235	64	3.6	.81	27	2.7	.00	---	
10			7.5	125	80	2.8	.71	26	1.6	.00	---	
11			7.4	74	78	4.6	.60	35	1.0	.00	---	
12			7.5	59	83	5.8	.39	28	.74	.00	---	
13			7.5	44	80	6.4	.21	20	.71	.00	---	
14			7.5	33	86	6.2	.14	7.7	.64	.00	---	
15			8.0	22	81	4.3	.04	4.3	.71	.00	---	
16			8.8	16	81	3.2	.00	2.8	.88	.00	---	
17			8.8	14	84	2.0	19	2.0	1.1	.00	---	
18			12	14	79	1.6	27	1.8	1.1	.00	---	
19			24	17	85	.95	20	1.5	.92	.00	---	
20			30	13	86	.85	15	1.1	.85	.00	---	
21			32	9.3	86	.49	19	11	.74	.00	---	
22			32	7.6	81	.35	20	29	.64	.00	---	
23			71	5.8	83	.46	23	30	.49	.00	---	
24			147	23	82	.71	21	21	.42	11	---	
25			144	21	85	.60	21	7.2	.39	21	---	
26			81	18	72	.53	21	4.3	.28	18	---	
27			62	14	76	.64	23	2.4	.25	16	---	
28			72	12	55	8.7	21	1.7	.18	15	---	
29			110	10	51	7.5	20	1.2	.18	8.8	---	
30			170	8.4	52	4.4	19	13	.14	6.4	---	
31			310	---	41	---	19	28	---	4.3	---	
TOTAL			1439.0	2633.1	1997	136.48	328.12	531.0	104.26	100.72	---	
MEAN			46.4	87.8	64.4	4.55	10.6	17.1	3.48	3.25	---	
MAX			310	304	86	28	27	44	29	21	---	
MIN			7.4	5.8	18	.35	.00	1.1	.14	.00	---	
AC-FT			2850	5220	3960	271	651	1050	207	200	---	

THE SEASON MARCH TO OCTOBER AC-FT 14,420

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

RESERVOIRS IN FRENCHMAN RIVER BASIN IN SASKATCHEWAN

(International gaging stations)

06157000 CYPRESS LAKE.--Lat 49°28'51", long 109°23'44", in SE¼ sec.23, T.6, R.26 W., third meridian, Hydrologic Unit 10050013, at east dam, 10.6 mi (17.1 km) north of Vidora, and at mile 348.6 (560.9 km). DRAINAGE AREA, 159 mi^2 (412 km^2). PERIOD OF RECORD, February 1939 to current season (seasonal records only). Records prior to October 1946, published only in WSP 1309. March to May 1952 daily elevations and contents, published in WSP 1260-B. Water-stage recorder at east dam. Datum of gage is at mean sea level (Canadian Geodetic Survey datum; subtract 33.67 ft or 10.263 m to obtain Reclamation Service datum). Prior to 1969 season, at Reclamation Service datum. Prior to 1940, nonrecording gage on natural lake at "South" station. February 1940 to Apr. 28, 1955, elevation obtained from average of nonrecording gage readings at west and east dams.

This is an offstream reservoir formed by two earthfill dams on a natural lake of the same name which was, at one time, the head of the Frenchman River. There are concrete control works at both dams. The following capacity figures are from capacity table effective February 1970; see previous reports for superseded figures. Total capacity, 105,300 acre-ft (130 hm^3) between elevation 3,187.17 ft (971.449 m), bottom of outlet works, and 3,202.17 ft (976.021 m), maximum design level. Dead storage, 25,130 acre-ft (31.0 hm^3) below elevation 3,187.17 ft (971.449 m). Water is diverted from Battle Creek on west, 12 mi (19 km) northwest of Consul, and from Belanger Creek, head of Frenchman River, on the east, 12 mi (19 km) north of Vidora. Water is released to the same streams for irrigation. Figures given herein represent total contents. This is one of a number of stations which are maintained jointly by Canada and the United States. Records partly furnished by Prairie Farms Rehabilitation Administration, Canada.

EXTREMES FOR PERIOD OF RECORD: Maximum contents, 117,300 acre-ft (145 hm^3) Apr. 21, 1955, elevation, 3,203.36 ft (976.384 m, present datum), by capacity table used prior to 1970 season; minimum since first filling, 32,760 acre-ft (40.4 hm^3) Oct. 26, 1964, elevation, 3,188.11 ft (971.736 m, present datum) by capacity table used prior to 1970 season.

EXTREMES FOR CURRENT SEASON: Maximum contents, 64,110 acre-ft (79.0 hm^3) Apr. 21, elevation, 3,194.86 ft (973.793 m); minimum, 38,990 acre-ft (48.1 hm^3) Oct. 21, elevation, 3,190.04 ft (972.324).

06159000 EASTEND RESERVOIR.--Lat 49°30'22", long 108°51'08", in NW¼ sec.25, T.6, R.22 W., third meridian, Hydrologic Unit 10050013, at dam on Frenchman River, 1.6 mi (2.6 km) west of Eastend, and at mile 300.5 (483.5 km). DRAINAGE AREA, 636 mi^2 (1,647 km^2). PERIOD OF RECORD, February 1937 to current season (seasonal records only). Water-stage recorder. Prior to 1958, published as East End Reservoir at East End. Nonrecording gages read about once a day during irrigation season and twice a day during high stages February 1937 to July 1979. Datum of gage is at mean sea level (Canadian Geodetic Survey datum).

Reservoir is formed by earthfill dam completed in 1939, breached during flood in 1952 and rebuilt the same year with a concrete spillway and control works. Usable capacity, 3,300 acre-ft (4.07 hm^3) between elevation 3,000.9 ft (914.67 m), bottom of outlet works, and 3,015 ft (919.0 m), spillway crest. Dead storage, 37 acre-ft (45,600 m^3) below elevation 3,000.9 ft (914.67 m). Prior to 1963, usable capacity was 3,700 acre-ft (4.56 hm^3). Figures given herein represent usable contents. Water is used for irrigation. This is one of a number of stations which are maintained jointly by Canada and the United States. Records partly furnished by Prairie Farms Rehabilitation Administration, Canada. REVISED RECORDS (SEASONS), WSP 1309: 1948(M). WSP 1729: Drainage area. WSP 2116: 1937-65

EXTREMES FOR PERIOD OF RECORD: Maximum contents, about 3,700 acre-ft (4.56 hm^3) Apr. 15, 1952, elevation, about 3,015 ft (919.0 m), dam overtopped; no storage at various times.

EXTREMES FOR CURRENT SEASON: Maximum contents observed, 1,740 acre-ft (2.15 hm^3) July 8, elevation, 3,011.41 ft (917.878 m); no storage Aug. 13 to Sept. 23.

06162000 HUFF LAKE (formerly Val Marie West Reservoir) .--Lat 49°22'06", long 107°53'22", near center of east line of sec.12, T.5, R.15 W., third meridian, Hydrologic Unit 10050013, at dam on Frenchman River, 11 mi (18 km) northwest of Val Marie, and at mile 169.7 (273.0 km). PERIOD OF RECORD, February 1940 to current season (seasonal records only). Records prior to October 1946, published only in WSP 1309. April to May 1952 daily elevations and contents, published in WSP 1260-B. Water-stage recorder. Datum of gage is at mean sea level (Canadian Geodetic Survey datum). May 1952 to May 1954, reference point on control structure. May 1954 to May 10, 1966, nonrecording gages.

Reservoir is formed by earthfill dam with concrete control works completed in 1939. Usable capacity, 3,540 acre-ft (4.36 hm^3) between elevation 2,662.8 ft (811.62 m), bottom of outlet works, and 2,676.35 ft (815.75 m), maximum design level. No dead storage. Prior to February 1961, total capacity, 2,270 acre-ft (2.80 hm^3); dead storage, 100 acre-ft (123,000 m^3) below elevation 2,660.0 ft (810.77 m) and February 1961 to 1963, 8 acre-ft (9,860 m^3) below elevation 2,663.0 ft (811.68 m). Figures given herein represent usable contents. Water is used for irrigation. This is one of a number of stations which are maintained jointly by Canada and the United States. Records partly furnished by Prairie Farms Rehabilitation Administration, Canada. REVISED RECORDS (SEASONS), WSP 1309: 1947-50.

EXTREMES FOR PERIOD OF RECORD: Maximum contents, 4,360 acre-ft (5.38 hm^3) May 20, 1967, elevation, 2,677.83 ft (816.203 m); no storage Feb. 28, Mar. 31, 1950.

EXTREMES FOR CURRENT SEASON: Maximum contents, 3,740 acre-ft (4.61 hm^3) June 27, elevation, 2,676.72 ft (815.864 m); minimum, 430 acre-ft (530,200 m^3) Sept. 24, elevation, 2,667.93 ft (813.185 m).

RESERVOIRS IN FRENCHMAN RIVER BASIN IN SASKATCHEWAN--Continued

(International gaging stations)

06163000 **NEWTON LAKE** (formerly Val Marie Reservoir).--Lat 49°18'18", long 107°48'11", in NE¼ sec.15, T.4, R.14 W., third meridian, Hydrologic Unit 10050013, at dam on Frenchman River, 5.4 mi (8.7 km) northwest of Val Marie, and at mile 156.2 (251.3 km). PERIOD OF RECORD, February 1937 to current season (seasonal records only). Water-stage recorder. Datum of gage is at mean sea level (Canadian Geodetic Survey datum). Prior to May 11, 1966, nonrecording gages.

Reservoir is formed by earthfill dam with concrete control works; construction began in 1936; storage began in 1937; completed in 1938. Usable capacity, 14,100 acre-ft (17.4 hm^3) between elevation 2,619.5 ft (798.42 m), bottom of outlet works, and 2,638.57 ft (804.236 m), top of dam. No dead storage. Prior to February 1966, capacity varied from 11,060 acre-ft (13.6 hm^3) to 16,560 acre-ft (20.4 hm^3), including dead storage of 829 acre-ft (1.02 hm^3). Figures given herein represent usable contents. Water is used for irrigation. This is one of a number of stations which are maintained jointly by Canada and the United States. Records partly furnished by Prairie Farms Rehabilitation Administration, Canada. REVISED RECORDS (SEASONS), WSP 2116: 1937-65. WSP 1729: 1949.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 18,920 acre-ft (23.3 hm^3) Apr. 19, 1952, elevation, 2,638.80 ft (804.306 m); no storage at times.

EXTREMES FOR CURRENT SEASON: Maximum contents, 9,600 acre-ft (11.8 hm^3) Apr. 21, elevation, 2,635.78 ft (803.385 m); minimum, 635 acre-ft (783,000 m^3) Sept. 1, elevation, 2,624.25 ft (799.871 m).

Monthend contents, in acre-feet, year October 1979 to October 1980

	Cypress Lake	Eastend Reservoir	Huff Lake	Newton Lake
Oct. 31	60,680	813	1,250	4,090
Nov. 30	-	-	-	-
Dec. 31	-	-	-	-
Jan. 31	-	-	-	-
Feb. 29	60,360	181	649	3,860
Mar. 31	60,520	482	3,370	4,220
Apr. 30	63,410	1,580	3,560	9,550
May 31	55,210	736	1,220	3,690
June 30	50,030	1,570	3,580	4,590
July 31	42,730	706	1,160	2,140
Aug. 31	40,960	0	1,380	661
Sept. 30	39,700	132	472	1,480
Oct. 31	39,190	171	899	994

06164510 MILK RIVER AT JUNEBERG BRIDGE, NEAR SACO, MT

LOCATION.--Lat 48°30'32", long 107°13'02", in NE¼NE¼ sec.30, T.32 N., R.35 E., Phillips County, Hydrologic Unit 10050014, on left bank 25 ft (8 m) upstream from Juneberg bridge on Phillips County road, 1.5 mi (2.4 km) downstream from Frenchman River, 6.9 mi (11.1 km) northeast of Saco, and at mile 152.3 (245.0 km).

DRAINAGE AREA.--17,670 mi^2 (45,770 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,130 ft (649 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Flow increased during irrigation season by water from St. Mary Canal which diverts from the St. Mary River near Babb (station number 05017500). Flow regulated by Fresno Reservoir (station number 06136500), two reservoirs in Lodge Creek basin in Saskatchewan (station numbers 06144260 and 06144360), and four reservoirs in Frenchman River basin in Saskatchewan. There are many small dams for the diversion of irrigation canals upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,400 ft^3/s (351 m^3/s) Apr. 3, 1978, gage height, 24.20 ft (7.376 m); maximum gage height, 24.30 ft (7.407 m) Mar. 21, 1979 (backwater from ice jam); minimum discharge observed, 29 ft^3/s (0.82 m^3/s) Oct. 14, 1977, gage height, 2.66 ft (0.810 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 566 ft^3/s (16.0 m^3/s) Apr. 3, gage height, 4.34 ft (1.323 m); minimum observed, 46 ft^3/s (1.30 m^3/s) Apr. 29, gage height, 2.77 ft (0.844 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	131	230	142	115	95	105	320	136	204	312	255	125
2	128	197	148	115	100	110	362	131	213	437	316	136
3	125	178	154	115	105	120	513	210	213	509	328	139
4	123	166	157	115	105	115	548	213	213	500	312	145
5	117	163	148	115	100	110	496	210	217	465	281	148
6	109	160	151	115	100	110	470	207	145	437	270	134
7	123	157	148	115	95	110	370	207	142	428	248	125
8	128	151	142	110	90	110	316	248	151	392	217	148
9	128	148	151	110	90	110	296	241	148	353	213	136
10	128	142	178	115	90	110	357	237	169	288	227	148
11	128	142	163	110	95	110	362	248	160	266	230	157
12	128	142	160	115	95	115	288	277	166	224	210	154
13	115	142	178	120	95	115	230	215	163	181	210	145
14	117	142	178	120	100	115	169	202	169	166	194	157
15	109	148	160	120	100	110	139	212	172	142	191	166
16	97	151	148	115	105	110	117	145	145	160	184	169
17	99	160	139	120	105	115	102	142	139	217	194	166
18	99	187	151	115	110	125	90	145	145	255	204	148
19	104	175	145	110	115	135	87	154	145	285	220	120
20	94	169	136	110	120	150	69	151	160	296	220	104
21	92	170	134	110	115	160	76	142	142	285	210	92
22	87	169	134	110	115	150	69	107	125	237	200	87
23	87	172	131	110	115	145	53	117	123	234	178	109
24	85	178	130	110	115	140	55	145	120	210	163	112
25	80	175	125	105	110	140	48	197	134	207	157	97
26	102	160	125	105	110	145	57	217	184	187	148	85
27	175	148	125	105	115	150	46	197	220	197	151	83
28	184	125	125	100	115	160	53	181	181	187	154	85
29	191	120	120	95	110	190	80	125	207	178	139	83
30	234	115	120	90	---	210	142	117	266	181	139	78
31	241	---	120	85	---	266	---	175	---	194	148	---
TOTAL	3888	4782	4466	3420	3030	4166	6380	5651	5081	8610	6511	3781
MEAN	125	159	144	110	104	134	213	182	169	278	210	126
MAX	241	230	178	120	120	266	548	277	266	509	328	169
MIN	80	115	120	85	90	105	46	107	120	142	139	78
AC-FT	7710	9490	8860	6780	6010	8260	12650	11210	10080	17080	12910	7500

CAL YR 1979 TOTAL 363321 MEAN 995 MAX 9000 MIN 80 AC-FT 720600
WTR YR 1980 TOTAL 59766 MEAN 163 MAX 548 MIN 46 AC-FT 118500

06164510 MILK RIVER AT JUNEBERG BRIDGE, NEAR SACO, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1977 to current year.

REMARKS.--Once-daily water temperatures are available in the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,220 micromhos Jan. 7, 8, 1978; minimum daily, 280 micromhos Apr. 4, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,910 micromhos Dec. 17; minimum daily, 618 micromhos July 8.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
OCT 16...	1130	93	1	1200	8.3	9.0	10.5	350	110	81	36	150
NOV 21...	1045	179	0	1620	--	-4.0	.5	400	140	88	43	180
DEC 13...	1315	187	1	1780	--	-5.0	.0	480	160	100	55	240
JAN 10...	1230	116	2	1800	--	-15.0	.0	470	--	100	53	220
FEB 19...	1330	113	2	1750	7.8	-6.0	.0	500	120	110	54	230
MAR 10...	1200	112	2	1650	7.9	-7.0	.0	430	99	91	49	220
APR 25...	1130	53	0	1470	8.1	21.0	14.0	330	95	73	37	190
MAY 12...	1300	259	0	1120	8.2	19.0	14.5	260	53	54	31	130
JUN 24...	1215	113	1	940	8.1	24.0	20.0	270	41	59	30	120
JUL 22...	1300	231	0	820	8.1	33.0	23.0	230	15	49	25	90
AUG 26...	1230	141	0	890	8.2	22.0	17.0	250	29	55	27	100
SEP 23...	1200	113	1	910	8.7	13.0	13.0	250	24	57	27	110

DATE	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)
OCT 16...	3.5	6.2	240	400	22	.3	6.8	847	1.15	213	.02	.01
NOV 21...	3.9	7.6	260	500	31	.4	5.6	1010	1.37	488	.04	.01
DEC 13...	4.8	7.2	320	590	41	.4	6.8	1230	1.67	621	.31	.01
JAN 10...	4.4	7.7	--	550	39	.4	6.1	977	1.33	306	.20	.01
FEB 19...	4.5	7.1	380	520	37	.3	7.0	1200	1.63	366	.40	.01
MAR 10...	4.6	7.4	330	500	34	.2	4.3	1110	1.51	336	.26	.01
APR 25...	4.5	7.0	240	460	23	.1	2.7	938	1.28	134	.09	.01
MAY 12...	3.5	6.5	210	330	17	.3	3.5	699	.95	489	.03	.01
JUN 24...	3.2	6.9	230	260	18	.2	8.7	641	.87	196	.01	.02
JUL 22...	2.6	5.4	210	180	10	.3	6.9	493	.67	307	.04	.02
AUG 26...	2.8	7.2	220	210	12	.3	6.2	550	.75	209	.00	.01
SEP 23...	3.0	5.4	230	230	15	.3	6.0	589	.80	180	.00	.02

06164510 MILK RIVER AT JUNEBERG BRIDGE NEAR SACO, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1200	1370	1860	1700	1730	1680	1180	1500	1090	969	780	850
2	1210	1380	1870	1680	1740	1720	1220	1510	1080	980	782	860
3	1220	1440	1880	1680	1750	1770	1260	1500	945	960	783	850
4	1220	1470	1860	1680	1750	1680	1210	1120	960	865	789	841
5	1220	1480	1820	1700	1640	1720	1160	940	938	715	801	845
6	1230	1370	1760	1700	1750	1670	---	938	925	670	790	870
7	1240	1350	1720	1730	1750	1630	1040	952	921	650	790	870
8	1240	1260	1720	1720	1770	1630	1110	1000	919	618	739	882
9	1240	1240	1680	1710	1800	1600	1060	1220	981	630	703	883
10	1250	1240	1690	1720	1820	1630	870	1260	1030	632	704	891
11	1260	1240	1700	1730	1850	1550	815	1100	1020	690	719	892
12	1260	1250	1730	1720	1860	1530	881	1080	1040	684	700	900
13	1270	1260	1770	1720	1850	1530	942	1110	1030	690	712	890
14	1270	1270	1790	1670	1850	1540	1000	1150	1050	708	730	893
15	1260	1280	1810	1640	1840	1540	1020	---	1100	726	732	889
16	1260	1300	1870	1650	1790	1530	1020	1310	1100	736	760	894
17	1260	1310	1910	1640	1760	1540	1040	1370	1120	739	761	861
18	1270	1340	1900	1620	1750	1520	1140	1430	1060	739	770	860
19	1270	1380	1810	1600	1730	1480	1160	1540	1050	739	780	870
20	1270	1460	1790	1610	1700	1370	1230	1730	995	742	789	871
21	1280	1550	1790	1610	1690	1440	1260	1770	995	760	811	860
22	1270	1590	1780	1620	1670	1440	1300	1790	980	797	786	879
23	1270	1630	1770	1640	1650	1320	1330	1630	1010	801	821	870
24	1280	1660	1790	1610	1650	1200	1340	1620	999	804	820	900
25	1290	1700	1800	---	1650	1160	1450	1800	1020	769	830	928
26	1280	1740	1800	1610	1650	1080	1500	1550	1040	770	849	929
27	1260	1780	1760	1620	1650	1070	---	1550	1040	769	820	935
28	1280	1830	1700	1660	1660	1040	1550	1440	953	775	832	921
29	1320	1820	1680	1700	1680	1320	1540	1340	897	776	850	920
30	1320	1850	1650	1700	---	1160	1500	1380	918	773	849	920
31	1330	---	1660	1720	---	1150	---	1250	---	791	870	---
MEAN	1260	1460	1780	1670	1740	1460	1180	1360	1010	757	782	884

WTR YR 1980 MEAN 1280 MAX 1910 MIN 618

06164800 BEAVER CREEK ABOVE DIX CREEK, NEAR MALTA, MT

LOCATION.--Lat 48°05'30", long 107°33'18", in SE¼ sec.14, T.27 N., R.32 E., Phillips County, Hydrologic Unit 10050014, on left bank 150 ft (46 m) upstream from bridge on county road, 1 mi (2 km) upstream from Dix Creek, 25 mi (40 km) southeast of Malta, and at mile 108.1 (173.9 km).

DRAINAGE AREA.--929 mi^2 (2,406 km^2).

PERIOD OF RECORD.--October 1966 to September 1969, October 1975 to current year.

REVISED RECORDS.--WDR-76-1: 1976(M).

GAGE.--Water-stage recorder. Datum of gage is 2,269.18 ft (691.646 m) National Geodetic Vertical Datum of 1929. Prior to July 25, 1979, at site 180 ft (55 m) downstream at same datum.

REMARKS.--Records good except those for periods of flow, which are poor. Some regulation by numerous small reservoirs on tributary streams. Several oservations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--8 years (1967-69, 1976-80), 56.2 ft^3/s (1.592 m^3/s), 40,720 acre-ft/yr (50.2 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,180 ft^3/s (203 m^3/s) Mar. 28, 1978, gage height, 19.60 ft (5.974 m), from floodmark; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined, but occurred on Mar. 20 (ice jam), no peaks above base of 500 ft^3/s (14.2 m^3/s); maximum gage height, undetermined; no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	2.0	3.4	2.3	2.4	20	.00	.00	.00	.00	.00
2	.00	.00	2.0	3.2	2.5	2.6	20	.00	.00	.00	.00	.00
3	.00	.00	2.0	3.0	2.8	2.4	20	.00	.00	.00	.00	.00
4	.00	.00	2.1	2.8	2.9	2.3	18	.00	.00	.00	.00	.00
5	.00	.00	2.7	2.6	2.7	2.1	14	.00	.00	.00	.00	.00
6	.00	.00	2.7	2.4	2.5	2.1	10	.00	.00	.00	.00	.00
7	.00	.00	2.7	2.2	2.3	2.3	11	.00	.00	.00	.00	.00
8	.00	.00	3.4	2.0	2.2	2.5	12	.00	.00	.00	.00	.00
9	.00	.00	3.4	1.8	2.1	2.9	11	.00	.00	.00	.00	.00
10	.00	.00	3.9	1.5	1.9	2.7	10	.00	.00	.00	.00	.00
11	.00	.00	5.6	1.3	1.8	3.2	12	.00	.00	.00	.00	.00
12	.00	.00	5.1	1.6	1.7	3.6	12	.00	.00	.00	.00	.00
13	.00	.00	3.9	1.8	1.7	4.4	10	.00	.00	.00	.00	.00
14	.00	.00	2.7	2.0	1.8	5.8	8.1	.00	.00	.00	.00	.00
15	.00	.00	2.4	2.1	1.9	7.2	7.4	.00	.00	.00	.00	.00
16	.00	.00	2.3	2.0	2.1	9.8	8.1	.00	.00	.00	.00	.00
17	.00	.00	2.7	1.9	2.2	13	7.4	.00	.00	.00	.00	.00
18	.00	.00	3.2	1.9	2.3	17	5.1	.00	.00	.00	.00	.00
19	.00	.10	4.2	1.9	2.4	23	5.6	.00	.00	.00	.00	.00
20	.00	3.7	4.6	1.8	2.4	31	4.6	.00	.00	.00	.00	.00
21	.00	3.7	4.6	1.7	2.3	28	3.9	.00	.00	.00	.00	.00
22	.00	2.9	5.1	1.8	2.3	25	3.2	.00	.00	.00	.00	.00
23	.00	2.5	5.1	2.1	2.3	22	2.6	.00	.00	.00	.00	.00
24	.00	2.3	5.6	2.4	2.2	20	2.0	.00	.02	.00	.00	.00
25	.00	2.3	5.6	2.1	2.3	18	1.2	.00	.00	.00	.00	.00
26	.00	2.3	5.6	1.8	2.4	17	.60	.00	.00	.00	.00	.00
27	.00	2.3	4.6	1.6	2.6	17	.00	.00	.00	.00	.00	.00
28	.00	2.2	4.2	1.5	2.5	18	.00	.00	.00	.00	.00	.00
29	.00	2.1	4.2	1.7	2.4	19	.00	.00	.00	.00	.00	.00
30	.00	2.0	3.9	1.9	---	19	.00	.00	.00	.00	.00	.00
31	.00	---	3.9	2.1	---	19	---	.00	---	.00	.00	---
TOTAL	.00	28.40	116.0	63.9	65.8	364.3	239.80	.00	.02	.00	.00	.00
MEAN	.000	.95	3.74	2.06	2.27	11.8	7.99	.000	.001	.000	.000	.000
MAX	.00	3.7	5.6	3.4	2.9	31	20	.00	.02	.00	.00	.00
MIN	.00	.00	2.0	1.3	1.7	2.1	.00	.00	.00	.00	.00	.00
AC-FT	.00	56	230	127	131	723	476	.00	.04	.00	.00	.00

CAL YR 1979 TOTAL 51826.07 MEAN 142 MAX 3490 MIN .00 AC-FT 102800
WTR YR 1980 TOTAL 878.22 MEAN 2.40 MAX 31 MIN .00 AC-FT 1740

06166000 BEAVER CREEK BELOW GUSTON COULEE, NEAR SACO, MT

LOCATION.--Lat 48°21'44", long 107°34'23", in SW¼NW¼ sec. 16, T.30 N., R.32 E., Phillips County, Hydrologic Unit 10050014, on county road bridge 9 mi (14 km) downstream from Guston Coulee, 13.0 mi (20.9 km) southwest of Saco and 13.9 mi (22.4 km) east of Malta.

DRAINAGE AREA.--1,208 mi^2 (3,129 km^2).

PERIOD OF RECORD.--October 1979 to September 1980.

REMARKS.--Previously published as "...near Bowdoin." Flow not present during station visits

06169500 ROCK CREEK BELOW HORSE CREEK, NEAR INTERNATIONAL BOUNDARY

(Hydrologic bench-mark station)

LOCATION.--Lat 48°58'10", long 106°50'20", in NE¼NW¼ sec.15, T.37 N., R.37 E., Valley County, Hydrologic Unit 10050015, on right bank 2 mi (3 km) south of international boundary, 3 mi (5 km) downstream from Horse Creek, 21 mi (34 km) northwest of Opheim, MT, and at mile 82.0 (132 km).

DRAINAGE AREA.--328 mi^2 (850 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1916 to October 1926, September 1956 to current year (seasonal records only prior to October 1978). Monthly discharge only for some periods, published in WSP 1309. Published as Rock Creek near Barnard, Mt. 1916-17. Prior to September 1956, records were collected at both Horse Creek (1914-56) and Rock Creek above Horse Creek (1914-56). Summations are equivalent to records at this site.

REVISED RECORDS.--WSP 1509: 1925(M), WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,530 ft (771 m), from topographic map. March 1916 to October 1926, nonrecording gages at several sites within 500 ft (152 m) upstream at different datum.

REMARKS.--Records good except those for winter months, which are poor. Several small diversions for irrigation above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,420 ft^3/s (125 m^3/s) Apr. 7, 1969, gage height, 12.03 ft (3.667 m); maximum gage height, 13.40 ft (4.084 m) Mar. 29, 1978 (backwater from ice); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 15, 1952, reached a stage of 12.6 ft (3.84 m), from floodmarks, discharge, 5,110 ft^3/s (145 m^3/s), by slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 500 ft^3/s (14.2 m^3/s) Mar. 30; maximum gage height, 6.66 ft (2.030 m) Mar. 30 (backwater from ice); no flow Jan. 11 to Mar. 18, Aug. 3, 4, 6-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.80	2.6	1.6	1.7	.00	.00	225	4.5	2.1	4.5	.03	.07
2	.77	2.5	1.8	1.6	.00	.00	151	4.3	2.1	3.9	.01	.07
3	.74	2.6	2.1	1.5	.00	.00	111	4.5	1.9	3.5	.00	.07
4	.74	2.6	2.3	1.2	.00	.00	95	4.3	2.2	2.6	.00	.06
5	.74	2.6	2.6	.80	.00	.00	135	4.3	1.9	2.2	.01	.05
6	.80	2.6	3.1	.48	.00	.00	250	3.9	1.8	2.6	.00	.05
7	.86	2.6	3.3	.20	.00	.00	287	4.1	1.7	2.2	.00	.05
8	.95	2.6	2.9	.15	.00	.00	255	4.1	1.6	1.8	.00	.03
9	1.0	2.5	2.8	.10	.00	.00	144	3.7	1.6	1.6	.00	.03
10	1.0	2.5	2.5	.05	.00	.00	89	3.5	1.3	1.3	.03	.03
11	1.0	2.6	2.2	.00	.00	.00	86	3.5	1.4	1.0	.03	.05
12	1.1	2.8	1.9	.00	.00	.00	76	3.3	1.5	.88	.03	.05
13	1.2	3.0	1.7	.00	.00	.00	54	3.3	1.6	.74	.01	.05
14	1.2	3.0	1.9	.00	.00	.00	41	3.3	1.3	.80	.01	.05
15	1.2	3.1	2.1	.00	.00	.00	32	3.1	1.4	.80	.03	.04
16	1.4	3.2	1.5	.00	.00	.00	25	3.3	2.3	.74	.07	.05
17	1.5	3.3	1.3	.00	.00	.00	23	4.5	1.8	.48	.23	.06
18	1.5	3.5	1.6	.00	.00	.00	19	4.7	1.3	.43	.34	.09
19	1.6	3.6	1.8	.00	.00	.20	15	7.9	1.5	.39	.34	.33
20	1.9	3.6	1.8	.00	.00	1.5	12	5.4	5.0	.30	.30	.63
21	1.9	3.1	2.2	.00	.00	1.0	10	5.0	22	.26	.26	7.1
22	2.4	2.9	2.2	.00	.00	1.0	9.2	4.7	6.5	.23	.26	4.5
23	2.6	3.1	2.3	.00	.00	10	8.7	4.1	3.9	.19	.34	2.7
24	2.5	2.9	2.2	.00	.00	30	7.6	3.5	3.5	.07	.30	1.9
25	2.6	2.8	2.2	.00	.00	46	6.7	3.3	2.3	.10	.23	1.6
26	2.7	2.6	2.6	.00	.00	40	6.5	2.9	1.7	.16	.23	1.3
27	3.0	2.3	2.5	.00	.00	30	6.2	2.5	1.9	.16	.19	1.5
28	3.0	1.9	2.3	.00	.00	40	5.9	2.5	1.8	.16	.16	1.3
29	2.7	1.7	2.2	.00	.00	190	5.2	2.2	3.0	.13	.13	1.2
30	2.8	1.6	2.2	.00	---	500	5.0	2.2	11	.07	.12	1.1
31	2.6	---	2.1	.00	---	370	---	2.2	---	.05	.07	---
TOTAL	50.80	82.3	67.8	7.78	.00	1259.70	2196.0	118.6	94.9	34.34	3.76	26.11
MEAN	1.64	2.74	2.19	.25	.000	40.6	73.2	3.83	3.16	1.11	.12	.87
MAX	3.0	3.6	3.3	1.7	.00	500	287	7.9	22	4.5	.34	7.1
MIN	.74	1.6	1.3	.00	.00	.00	5.0	2.2	1.3	.05	.00	.03
AC-FT	101	163	134	15	.00	2500	4360	235	188	68	7.5	52

CAL YR 1979 TOTAL 12420.53 MEAN 34.0 MAX 1430 MIN .00 AC-FT 24640
WTR YR 1980 TOTAL 3942.09 MEAN 10.8 MAX 500 MIN .00 AC-FT 7820

06169500 ROCK CREEK BELOW HORSE CREEK, NEAR INTERNATIONAL BOUNDARY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964, 1965, 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
OCT 22...	1300	2.3	1	1950	8.6	8.0	7.0	10.7	96	K20	210
NOV 19...	1200	3.5	1	1800	8.4	3.0	2.0	11.8	93	K11	58
DEC 11...	1100	2.2	0	1850	8.3	-14.5	.0	12.3	91	760	190
JAN 08...	1115	.16	0	1920	8.0	-21.0	.0	10.8	80	5300	2300
MAR 25...	1200	47	2	540	7.9	1.0	.0	12.0	89	82	140
APR 02...	1330	152	1	312	7.4	1.5	1.0	11.8	90	--	--
09...	1230	139	1	--	--	10.0	7.0	--	--	K120	K5
28...	1530	6.0	0	867	8.4	21.5	17.5	7.9	90	K52	K9
JUN 26...	1215	1.7	1	822	8.0	22.0	17.0	7.4	83	K57	K69
JUL 21...	1315	.31	0	1200	8.7	24.0	20.0	8.0	95	120	80
AUG 29...	1100	.14	1	1560	8.7	15.0	16.0	9.4	103	100	110
SEP 26...	1000	1.3	1	2000	8.7	10.0	8.5	10.0	93	110	140

DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)
OCT 22...	32	240	0	30	41	350	9.8	10	500	490	7.9
NOV 19...	K19	250	0	40	36	340	9.4	9.3	560	390	8.0
DEC 11...	K18	350	0	58	49	320	7.5	11	680	360	7.9
JAN 08...	K10	390	0	71	51	330	7.3	11	760	350	7.1
MAR 25...	K54	85	0	16	11	80	3.8	10	120	130	4.1
APR 02...	--	65	0	13	7.9	38	2.3	8.3	80	62	2.5
09...	250	--	--	--	--	--	--	--	--	--	--
28...	K25	220	0	42	27	130	3.9	9.6	350	130	3.0
JUN 26...	140	100	0	19	13	130	5.6	6.4	210	180	1.4
JUL 21...	200	140	0	19	23	260	11	10	440	250	4.5
AUG 29...	81	150	0	19	26	300	11	9.8	450	330	6.0
SEP 26...	73	240	0	27	42	390	11	11	530	550	7.0

06169500 ROCK CREEK BELOW HORSE CREEK, NEAR INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, ORTHOPHOSPHATE DISSOL. (MG/L AS P) (00671)
OCT 22...	.5	2.7	1250	1230	1.70	7.76	.09	--	.03	--
NOV 19...	.4	9.8	1130	1170	1.54	10.7	.07	--	.03	--
DEC 11...	.4	17	1050	1230	1.43	6.24	.22	--	.02	--
JAN 08...	.5	21	1280	1300	1.74	.55	--	.28	.02	.03
MAR 25...	.1	8.9	377	337	.51	47.8	.25	--	.28	.04
APR 02...	.1	6.6	61	--	.08	25.0	.18	.08	.20	.01
09...	--	--	--	--	--	--	--	--	--	--
28...	.3	10	566	562	.77	9.17	.00	.02	.07	.01
JUN 26...	.2	4.3	501	481	.68	2.30	.01	.01	.06	.01
JUL 21...	.7	3.3	831	836	1.13	.70	.00	.00	.12	.00
AUG 29...	.5	1.7	1040	988	1.41	.39	.00	.00	.10	.00
SEP 26...	.5	2.9	1350	1360	1.84	4.74	.00	.00	.05	.05

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, DISSOLVED (UG/L AS CO) (01035)
APR 02...	1330	3	3	100	40	< 1	1	2	10	4	< 3
JUL 21...	1315	7	8	100	60	< 1	0	< 1	10	0	< 3

DATE	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)
APR 02...	10	13	5500	410	5	10	27	120	59	.1	.1
JUL 21...	6	< 10	1100	71	8	< 10	130	80	3	.2	.1

DATE	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	CYANIDE TOTAL (MG/L AS CN) (00720)
APR 02...	< 10	0	0	1	0	100	< 6.0	40	15	.00
JUL 21...	15	0	0	0	0	260	< 6.0	30	16	.00

06169500 ROCK CREEK BELOW HORSE CREEK, NEAR INTERNATIONAL BOUNDARY--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DIAZINON, TOTAL (UG/L) (39570)
APR										
02...	1330	0	.00	.0	0	.0	.00	.0	.0	.00

DATE	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)
APR									
02...	.0	.0	.00	.00	.0	.0	.0	.00	.0

DATE	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TRITHION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)	PARATHION, TOTAL (UG/L) (39540)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)	TOTAL TRITHION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	SILVEX, TOTAL (UG/L) (39760)
APR									
02...	.00	.00	.00	.00	0	.00	.05	.00	.00

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DISSOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L) (09511)	URANIUM DISSOLVED, EXTRACTION (UG/L) (80020)
APR											
02...	1330	3.1	2.1	8.7	5.9	8.2	4.7	8.3	4.7	.09	.57

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
22...	1300	7.0	2.3	14	.09	--
DEC						
11...	1100	.0	2.2	59	.35	--
JAN						
08...	1115	.0	.16	50	.02	--
APR						
02...	1330	1.0	152	119	49	98
28...	1530	17.5	6.0	65	1.1	--
JUN						
26...	1215	17.0	1.7	116	.53	--
AUG						
29...	1100	16.0	.14	103	.04	98
SEP						
26...	1000	8.5	1.3	64	.22	--

06174000 WILLOW CREEK NEAR GLASGOW, MT

LOCATION.--Lat 48°06'52", long 106°40'15", in SW¼NW¼NE¼ sec.10, T.27 N., R.39 E., Valley County, Hydrologic Unit 10050012, on right bank 5.8 mi (9.3 km) south of Glasgow, and at mile 12.6 (20.3 km), revised.

DRAINAGE AREA.--538 mi^2 (1,393 km^2)

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,085.63 ft (635.700 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REVISED RECORDS.--WSP 1729: Drainage area. WSP 1916: 1960.

REMARKS.--Records good. There are more than 270 storage and detention reservoirs upstream. Water-spreader irrigation of about 5,000 acres (20.2 km^2) of hay or pasture lands to extent of available flow. Several observations of water temperature were made during the year and available in files of Helena district office.

AVERAGE DISCHARGE.--27 years, 60.5 ft^3/s (1.713 m^3/s), 43,800 acre-ft/yr (54.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,400 ft^3/s (351 m^3/s) July 14, 1962, gage height, 21.70 ft (6.614 m); maximum gage height, 23.0 ft (7.01 m) June 21, 1974; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 17 ft^3/s (0.48 m^3/s) Mar. 21, gage height, 4.26 ft (1.298 m); no flow Oct. 1 to Mar. 20, Apr. 5 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	9.1	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	8.4	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	6.2	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	4.2	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	2.9	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	1.7	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.67	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.19	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.17	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.09	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.08	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	33.70	.07	.00	.00	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	1.09	.002	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	9.1	.02	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	67	.1	.00	.00	.00	.00	.00

CAL YR 1979 TOTAL 47470.85 MEAN 130 MAX 2610 MIN .00 AC-FT 94160
WTR YR 1980 TOTAL 33.77 MEAN .092 MAX 9.1 MIN .00 AC-FT 67

06174500 MILK RIVER AT NASHUA, MT

LOCATION.--Lat 48°07'52", long 106°21'50", in NE¼NE¼ sec.1, T.27 N., R.41 E., Valley County, Hydrologic Unit 10050012, on right bank at downstream side of former highway bridge site, 0.6 mi (1.0 km) southwest of Nashua, 2.0 mi (3.2 km) upstream from Porcupine Creek, and at mile 22.7 (36.5 km), revised.

DRAINAGE AREA.--22,332 mi^2 (57,840 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1939 to current year.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,027.75 ft (618.058 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Flow increased during irrigation season by water from St. Mary Canal which diverts from the St. Mary River near Babb. Flow regulated by Fresno Reservoir, two reservoirs in Lodge Creek basin in Saskatchewan, and four reservoirs in Frenchman River basin in Saskatchewan. Diversions for irrigation of about 140,000 acres (567 km^2) above station.

AVERAGE DISCHARGE.--41 years, 725 ft^3/s (20.53 m^3/s) 525,300 acre-ft/yr (648 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,300 ft^3/s (1,280 m^3/s) Apr. 18, 1952, gage height, 31.38 ft (9.565 m); minimum, 0.6 ft^3/s (0.017 m^3/s) July 15, 1961, gage height, 1.96 ft (0.597 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,350 ft^3/s (38.2 m^3/s) Apr. 5, gage height, 5.58 ft (1.701 m); minimum daily, 21 ft^3/s (0.59 m^3/s) May 31 to June 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165	213	170	170	120	140	242	34	21	88	107	162
2	161	232	175	170	120	155	270	33	21	88	107	159
3	161	266	185	170	125	155	333	32	21	83	99	162
4	160	275	190	170	130	150	582	31	23	83	88	176
5	158	257	190	160	130	150	1120	30	23	81	88	169
6	158	230	190	155	130	150	1200	30	37	121	115	169
7	150	206	185	155	130	145	914	34	38	272	152	176
8	149	190	185	150	125	140	734	43	52	329	146	169
9	155	183	180	150	125	140	618	46	53	300	146	152
10	151	182	180	150	120	135	483	47	62	264	162	146
11	151	183	175	150	120	130	500	55	64	234	180	149
12	145	177	180	150	120	130	587	63	58	198	206	155
13	137	169	180	150	120	125	554	63	51	155	206	149
14	136	160	180	150	120	125	491	55	47	133	206	152
15	139	160	180	150	120	125	375	58	56	110	230	169
16	139	160	170	150	120	130	285	92	73	88	251	176
17	133	170	170	150	120	140	238	71	88	63	290	180
18	124	170	180	150	120	150	220	57	86	57	295	169
19	120	175	185	150	125	165	203	46	90	59	286	166
20	128	165	190	150	125	179	180	37	67	76	251	206
21	131	160	•185	150	125	182	154	44	53	88	218	202
22	125	160	180	150	125	191	131	47	57	101	198	152
23	124	160	175	155	125	196	107	39	67	127	194	130
24	123	165	175	155	125	147	83	37	59	124	194	118
25	124	165	170	145	125	92	65	37	47	110	194	104
26	189	165	175	135	125	64	57	37	42	96	202	96
27	411	165	175	125	140	59	42	37	46	86	202	91
28	498	165	175	120	140	54	37	38	39	91	180	101
29	313	160	175	115	140	83	36	40	55	101	159	112
30	194	160	170	115	---	168	35	26	79	91	155	112
31	195	---	170	115	---	226	---	21	---	99	159	---
TOTAL	5347	5548	5545	4580	3635	4321	10876	1360	1575	3996	5666	4529
MEAN	172	185	179	148	125	139	363	43.9	52.5	129	183	151
MAX	498	275	190	170	140	226	1200	92	90	329	295	206
MIN	120	160	170	115	120	54	35	21	21	57	88	91
AC-FT	10610	11000	11000	9080	7210	8570	21570	2700	3120	7930	11240	8980

CAL YR 1979 TOTAL 578321 MEAN 1584 MAX 14300 MIN 120 AC-FT 1147000
WTR YR 1980 TOTAL 56978 MEAN 156 MAX 1200 MIN 21 AC-FT 113000

06174500 MILK RIVER AT NASHUA, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-53, 1959 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1974 to current year.

REMARKS.--Once-daily water temperatures are available in District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,540 micromhos Dec. 12, 1977; minimum daily, 246 micromhos Apr. 14, 1974.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,260 micromhos Dec. 19; minimum daily, 882 micromhos Apr. 9.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
OCT											
23...	1400	122	1	1530	8.4	16.0	7.0	16	10.8	97	K14
DEC											
03...	1200	188	1	1850	7.9	.0	.5	5.2	12.8	95	79
17...	1145	177	1	2250	8.0	-1.0	.0	5.7	12.6	96	K22
FEB											
04...	1100	131	1	2400	7.9	6.0	.0	.80	9.6	70	80
MAR											
05...	1230	150	0	2140	7.6	-3.0	.0	34	10.0	73	K17
27...	1400	57	1	2000	8.0	7.0	.5	6.4	14.1	104	K2
APR											
17...	1400	226	0	950	7.7	24.0	7.0	90	8.5	75	K14
MAY											
22...	1300	46	0	1990	8.4	39.0	21.5	18	9.5	116	K32
JUN											
20...	1300	69	0	1780	8.4	32.0	23.0	40	7.4	92	55
JUL											
28...	1400	89	0	1200	8.5	34.0	25.0	15	8.2	106	K29
AUG											
26...	1300	203	0	1040	8.5	21.5	18.5	18	8.5	96	K26
SEP											
29...	1400	114	0	1260	8.5	25.0	14.0	12	10.5	108	70

DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)
OCT											
23...	48	410	99	88	46	190	4.1	7.6	310	460	37
DEC											
03...	--	490	120	110	53	230	4.5	6.7	370	590	43
17...	K8	660	220	140	76	290	4.9	7.8	440	730	59
FEB											
04...	K5	630	170	130	73	320	5.6	8.2	460	770	57
MAR											
05...	K5	600	160	130	68	290	5.1	8.6	440	690	54
27...	35	450	120	97	51	240	4.9	7.2	330	590	44
APR											
17...	K38	220	68	46	25	120	3.5	8.3	150	290	13
MAY											
22...	72	480	150	110	50	260	5.2	11	330	530	67
JUN											
20...	80	400	92	85	46	220	4.8	11	310	500	52
JUL											
28...	K33	290	43	63	33	150	3.8	7.7	250	300	30
AUG											
26...	K36	260	34	58	29	130	3.5	7.8	240	260	22
SEP											
29...	K13	310	41	67	35	160	3.9	7.6	250	340	31

06174500 MILK RIVER AT NASHUA, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)
OCT										
23...	.3	5.9	1010	1020	1.37	333	.03	.02	.03	--
DEC										
03...	.3	5.7	1210	1260	1.65	614	.14	.17	.15	--
17...	.4	8.5	1650	1580	2.24	789	.12	.12	.01	.01
FEB										
04...	.4	9.9	1660	1650	2.26	587	.67	.34	.88	.30
MAR										
05...	.4	11	1500	1520	2.04	608	.50	.51	.20	.24
27...	.3	3.9	1270	1230	1.73	195	.03	.08	--	.12
APR										
17...	.3	6.3	591	600	.80	361	.22	.20	.14	--
MAY										
22...	.7	7.0	1310	1240	1.78	163	.01	.16	.10	.06
JUN										
20...	.5	6.2	1160	1110	1.58	216	.02	.02	.10	.00
JUL										
28...	.4	6.2	764	741	1.04	184	.00	.00	.01	.00
AUG										
26...	.3	6.4	674	652	.92	369	.00	.00	.03	.05
SEP										
29...	.3	5.1	912	808	1.24	281	.00	.00	.00	.00

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N) (00607)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT										
23...	.84	--	.87	.43	.08	.01	4.8	--	--	--
DEC										
03...	1.2	--	1.3	1.3	.04	.00	12	--	--	--
17...	.91	.80	.92	.81	.03	.01	13	--	--	--
FEB										
04...	.15	.15	.78	.45	.01	.01	10	--	--	--
MAR										
05...	.67	.64	.87	.88	.08	.03	--	7.7	--	20
27...	--	.51	1.1	.63	.06	.01	9.2	--	--	--
APR										
17...	1.3	--	1.4	1.2	.16	.04	14	--	--	--
MAY										
22...	1.0	.81	1.1	.87	.10	.02	--	10	1.2	< 10
JUN										
20...	1.5	1.2	1.6	1.2	.09	.07	18	--	--	--
JUL										
28...	1.6	.38	1.6	.38	.12	.04	8.9	--	--	--
AUG										
26...	.96	.48	.99	.53	.09	.02	--	7.7	.8	< 10
SEP										
29...	1.2	.82	1.2	.82	.08	.04	11	--	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
DEC										
17...	1145	--	--	--	--	--	--	--	--	--
MAR										
05...	1230	2	2	200	0	0	0	0	0	0
27...	1400	--	--	--	--	--	--	--	--	--
MAY										
22...	1300	3	2	0	50	0	< 1	0	0	0
AUG										
26...	1300	4	3	100	50	0	< 1	0	0	1
SEP										
29...	1400	--	--	--	--	--	--	--	--	--

06174500 MILK RIVER AT NASHUA, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
DEC										
17...	--	--	--	--	--	--	--	--	--	--
MAR										
05...	0	5	0	690	20	4	0	520	480	.0
27...	--	--	--	--	--	--	--	--	--	--
MAY										
22...	< 3	6	4	510	< 10	1	0	420	70	.1
AUG										
26...	< 3	13	2	740	< 10	5	0	140	10	.1
SEP										
29...	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
DEC									
17...	--	--	--	--	--	0	--	--	--
MAR									
05...	.0	3	3	1	1	0	0	20	10
27...	--	--	--	--	--	1	--	--	--
MAY									
22...	.1	6	8	1	1	0	0	20	< 3
AUG									
26...	.1	6	1	1	0	0	0	30	4
SEP									
29...	--	--	--	--	--	0	--	--	--

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1320	1510	1670	2010	2190	2170	1580	1290	1970	1650	1140	980
2	1360	1500	1650	2070	2250	2220	1520	1420	2000	1680	1170	990
3	1360	1500	1770	2080	2240	2200	1530	1420	1990	1800	1190	1030
4	1400	1590	1780	2080	---	2100	1470	1360	1970	1740	1290	1020
5	1400	1550	1950	1990	2200	2140	1460	1410	2050	1560	1280	1020
6	1400	1600	1950	2040	2170	2140	1360	1500	2060	1510	1210	1030
7	1420	1580	1950	1960	2050	2080	1360	1490	2020	1940	1210	1040
8	1420	1550	2010	2090	2100	2090	901	1530	1980	1550	1200	1040
9	1410	1540	2010	2070	2100	2060	882	1610	1980	1550	1200	1060
10	1410	1530	2120	2080	2090	2060	1100	1610	1890	1380	1240	1100
11	1410	1530	2130	2070	2060	2000	1100	1700	1890	1380	1250	1100
12	1420	1530	2000	1990	2030	2050	1080	1760	1850	1220	1240	1100
13	1440	1550	2180	2070	2030	1910	1080	1800	1840	1200	1240	1100
14	1430	1580	2190	2020	2020	2050	1080	1800	1800	1200	1080	1080
15	1430	1680	2170	2010	2020	2060	952	1850	1810	1200	1080	1100
16	1420	1650	2250	2000	2010	1620	951	1870	1840	1200	1060	1100
17	1410	1670	2230	1950	2020	2090	911	1860	1780	1220	1060	1120
18	1420	1690	2230	1980	2040	2100	932	1880	1700	1220	1040	1110
19	1420	1690	2260	2000	2050	2100	983	1890	1700	1260	1040	1150
20	1430	1820	2180	1990	2080	2100	1020	1890	1750	1260	1020	1150
21	1460	1840	2180	2000	---	2100	1060	1890	1700	1280	1040	1160
22	1450	1820	2180	2000	---	2100	1080	1900	1710	1360	1040	1170
23	1450	1680	2010	2000	2100	1850	1100	1900	1790	1280	1030	1180
24	1450	1700	2010	2010	2100	1850	1120	1910	1840	1180	1030	1170
25	1460	1620	2020	2020	2100	1820	1120	1920	1780	1180	1020	1180
26	1470	1630	2010	2100	2100	1800	1140	1940	1700	1150	1020	1150
27	1490	1630	2020	2100	2120	---	1160	1940	1700	1120	1020	1150
28	1670	1630	2090	2100	2080	1830	1160	1930	1630	1120	1020	1160
29	1350	1650	2120	2140	2150	1840	1190	1960	1620	1160	1020	1160
30	1350	1640	2120	2130	---	1620	1210	1970	1600	1180	1020	1160
31	1420	---	1830	2150	---	1590	---	2020	---	1160	1020	---
MEAN	1420	1620	2040	2040	2100	1990	1150	1750	1830	1350	1110	1100

WTR YR 1980 MEAN 1620 MAX 2260 MIN 882

06174500 MILK RIVER AT NASHUA, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
23...	1400	7.0	122	42	14	100
DEC						
03...	1200	.5	188	134	68	70
17...	1145	.0	177	112	54	76
FEB						
04...	1100	.0	131	74	26	75
MAR						
05...	1230	.0	150	67	27	91
27...	1400	.5	57	49	7.5	96
APR						
17...	1400	7.0	226	148	90	99
MAY						
22...	1300	21.5	46	91	11	95
JUN						
20...	1300	23.0	69	125	23	97
JUL						
28...	1400	25.0	89	50	12	99
AUG						
26...	1300	18.5	203	58	32	97
SEP						
29...	1400	14.0	114	41	13	95

06174500 MILK RIVER AT NASHUA, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO JUNE 1980

DATE	MAR 27,80	MAY 22,80	JUN 20,80
TIME	1400	1300	1300
TOTAL CELLS/ML	66000	27000	38000
DIVERSITY: DIVISION	0.6	1.4	1.6
.CLASS	0.6	1.4	1.6
..ORDER	0.7	1.8	2.0
...FAMILY	0.7	2.5	2.9
....GENUS	0.7	3.4	3.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...MICRACTINIACEAE						
....GOLENKINIA	--	-	--	-	170	0
....MICRACTINIUM	--	-	--	-	1400	4
...OOCYSTACEAE						
....ANKISTRODESMUS	2900	4	2900	10	3300	9
....CHLORELLA	--	-	300	1	--	-
....CHODATELLA	--	-	150	1	170	0
....DICTYOSPHAERIUM	--	-	4400#	16	--	-
....OOCYSTIS	--	-	--	-	340	1
....SELENASTRUM	--	-	1100	4	860	2
....TETRAEDRON	--	-	150	1	170	0
....TREUBARIA	--	-	76	0	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	610	2	7600#	20
....SCENEDESMUS	--	-	3600	13	2800	7
....TETRASTRUM	--	-	610	2	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	1500	2	150	1	520	1
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	59000#	89	150	1	4800	13
..PENNALES						
...NAVICULACEAE						
....NAVICULA	--	-	--	-	340	1
...NITZSCHIACEAE						
....NITZSCHIA	--	-	680	2	4600	12
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	76	0	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	150	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	3800	14	170	0
....COCCOCHLORIS	--	-	300	1	--	-
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	--	-	2100	8	2800	7
....ANABAENOPSIS	--	-	--	-	2800	7
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	5500#	20	5200	14
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	300	1	170	0
....TRACHELOMONAS	2900	4	380	1	170	0

06174500 MILK RIVER AT NASHUA, MT--Continued

PHYTOPLANKTON ANALYSES, JULY 1980 TO SEPTEMBER 1980

DATE	JUL 28,80	AUG 26,80	SEP 29,80
TIME	1400	1300	1400
TOTAL CELLS/ML	11000	13000	110000
DIVERSITY: DIVISION	1.7	1.0	1.3
.CLASS	1.7	1.1	1.3
..ORDER	2.1	1.5	1.3
...FAMILY	2.6	2.2	1.7
....GENUS	3.6	3.6	3.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...MICRACTINIACEAE						
....GOLENKINIA	--	-	61	0	--	-
....MICRACTINIUM	--	-	--	-	580	1
...OOCYSTACEAE						
....ANKISTRODESMUS	1700#	16	610	5	2900	3
....CHODATELLA	--	-	240	2	2000	2
....DICTYOSPHAERIUM	400	4	1100	9	6400	6
....OOCYSTIS	100	1	1200	9	580	1
....SELENASTRUM	--	-	670	5	580	1
....TETRAEDRON	--	-	180	1	290	0
...SCENEDESMACEAE						
....ACTINASTRUM	800	7	730	6	20000#	18
....CRUCIGENIA	1100	10	240	2	--	-
....SCENEDESMUS	1100	10	3500#	27	5200	5
....TETRASTRUM	200	2	970	8	3500	3
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	200	2	670	5	870	1
..ZYGNEMATALES						
...DESMIDIACEAE						
....STAURASTRUM	50	0	61	0	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	1400	13	490	4	870	1
....MELOSIRA	--	-	--	-	580	1
..PENNALES						
...FRAGILARIACEAE						
....SYNEDRA	100	1	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	650	6	850	7	1700	2
.XANTHOPHYCEAE						
..HETEROCOCCALES						
...CHLOROTHECIACEAE						
....OPHIOCYTIUM	50	0	61	0	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	50	0	61	0	290	0
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	61	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	30000#	28
....ANACYSTIS	100	1	910	7	25000#	23
....GOMPHOSPHAERIA	--	-	--	-	5800	5
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	1500	14	--	-	--	-
....ANABAENOPSIS	900	8	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	250	2	180	1	290	0
....PHACUS	--	-	--	-	290	0
....TRACHELOMONAS	100	1	--	-	870	1
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	50	0	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06175540 PRAIRIE ELK CREEK NEAR OSWEGO, MT

LOCATION.--Lat 47°59'54", long 105°52'02", in SE¼SE¼ sec.14, revised, T.26 N., R.45 E., McCone County, Hydrologic Unit 10060001, on left bank 460 ft (140 m) downstream from bridge on FAS 528, 0.9 mi (1.4 km) upstream from mouth, and 4 mi (6 km) south of Oswego.

DRAINAGE AREA.--352 mi^2 (912 km^2).

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,180 ft (664 m), from topographic map. Prior to June 5, 1978, at site 385 ft (117 m) upstream at datum 2.00 ft (0.610 m) higher.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Diversions for irrigation of about 230 acres (931,000 m^2) above station of which 170 acres (688,000 m^2) is flood irrigated. Some storage in stock ponds upstream.

AVERAGE DISCHARGE.--5 years, 22.8 ft^3/s (0.646 m^3/s), 16,520 acre-ft/yr (20.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,980 ft^3/s (84.4 m^3/s) Mar. 21, 1978, gage height, 5.52 ft (1.682 m), from floodmark, site and datum then in use; maximum gage height, 5.66 ft (1.725 m) June 15, 1978; no flow part of Feb. 22, 1978, result of freezeup, and on many days in February 1979.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined; maximum gage height, 2.78 ft (0.847 m) Mar. 15 (backwater from ice); no peaks above base of 450 ft^3/s (12.7 m^3/s); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.8	1.2	.45	.00	.20	5.5	1.7	1.8	1.3	.79	1.3
2	1.4	1.9	2.0	.45	.00	.20	5.0	1.7	1.8	1.2	.87	1.2
3	1.3	1.9	2.7	.40	.00	.10	5.5	1.7	2.1	1.3	1.0	1.1
4	1.4	2.0	3.1	.35	.00	.10	3.5	1.7	2.0	1.2	1.0	1.2
5	1.4	2.0	2.8	.35	.00	.10	4.0	1.6	1.6	1.0	1.2	1.2
6	1.3	1.9	2.5	.30	.00	.10	3.7	1.5	1.5	1.1	1.1	1.1
7	1.4	2.2	2.1	.25	.00	.20	3.5	1.5	1.5	.95	1.3	.87
8	1.5	2.5	1.8	.25	.05	.30	3.3	1.6	1.5	1.2	1.5	.79
9	1.6	2.2	2.0	.25	.00	.40	3.3	1.7	1.4	1.2	1.5	.87
10	1.6	2.1	1.8	.00	.00	.30	3.1	2.0	1.2	.95	6.0	.95
11	1.5	2.1	1.4	.00	.00	.60	3.0	1.8	1.4	.72	3.3	1.0
12	1.6	2.0	1.4	.00	.00	1.0	2.8	1.7	1.7	.56	1.6	1.2
13	1.7	1.9	1.3	.10	.00	2.0	2.7	1.7	2.1	.64	1.4	3.0
14	1.7	2.0	1.2	.10	.00	10	2.4	1.7	4.1	.87	1.2	2.1
15	1.7	2.0	1.0	.10	.00	65	2.5	1.7	1.8	1.0	1.1	1.7
16	1.7	2.1	.40	.10	.00	50	2.5	1.7	1.6	1.1	2.4	1.5
17	1.8	2.1	.40	.10	.00	55	2.4	1.8	1.5	.87	4.9	1.5
18	1.8	2.2	.60	.10	.00	60	2.3	1.7	1.3	.95	3.0	1.6
19	1.8	2.0	.60	.10	.00	50	2.2	1.6	1.2	1.2	2.2	2.5
20	2.0	1.8	.50	.10	.00	35	2.2	1.5	1.3	3.7	1.5	3.3
21	1.8	1.5	.40	.05	.00	25	2.1	1.5	1.2	2.8	1.2	3.0
22	2.0	1.3	.40	.05	.00	20	2.0	1.5	1.1	2.7	1.1	7.0
23	2.0	1.2	.35	.05	.00	15	2.0	1.4	1.3	1.5	1.6	3.3
24	2.0	1.0	.40	.05	.00	11	1.7	1.3	1.1	1.0	2.3	4.9
25	2.0	.90	.60	.05	.00	11	1.7	1.6	.95	.79	1.3	5.2
26	2.0	.90	.60	.05	.00	11	1.7	1.7	.95	.87	1.1	3.0
27	1.8	.80	.60	.00	.50	13	1.8	1.2	1.4	.79	1.3	2.2
28	1.8	.70	.50	.00	.40	15	1.7	1.4	1.4	.79	1.2	1.7
29	1.8	.60	.50	.00	.30	11	1.7	1.5	1.3	.72	1.0	1.4
30	1.8	.80	.50	.00	---	9.0	1.6	1.6	1.3	.72	1.1	1.2
31	1.5	---	.35	.00	---	7.0	---	1.8	---	.64	1.1	---
TOTAL	52.1	50.40	36.00	4.15	1.25	478.60	83.4	50.1	47.40	36.33	53.16	62.88
MEAN	1.68	1.68	1.16	.13	.043	15.4	2.78	1.62	1.58	1.17	1.71	2.10
MAX	2.0	2.5	3.1	.45	.50	65	5.5	2.0	4.1	3.7	6.0	7.0
MIN	1.3	.60	.35	.00	.00	.10	1.6	1.2	.95	.56	.79	.79
AC-FT	103	100	71	8.2	2.5	949	165	99	94	72	105	125

CAL YR 1979 TOTAL 12336.25 MEAN 33.8 MAX 996 MIN .00 AC-FT 24470
WTR YR 1980 TOTAL 955.77 MEAN 2.61 MAX 65 MIN .00 AC-FT 1900

06177000 MISSOURI RIVER NEAR WOLF POINT, MT

LOCATION.--Lat 48°03'57", long 105°32'12", in SW¼NW¼ sec.28, T.27 N., R.48 E., McCone County, Hydrologic Unit 10060001, on right bank 500 ft (150 m) downstream from bridge on State Highway 13, 5 mi (8 km) southeast of Wolf Point, 7.8 mi (12.6 km) downstream from Wolf Creek, and at mile 1,701.4 (2,737.6 km).

DRAINAGE AREA.--82,290 mi^2 (213,131 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1928 to current year.

REVISED RECORDS.--WSP 1146: 1931. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,958.57 ft (596.972 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 13, 1930, nonrecording gages at Wolf Point ferry landing 5.5 mi (8.8 km) upstream at different datum.

REMARKS.--Records fair. Flow partly regulated by Fort Peck Lake and many other reservoirs above station. Diversion for irrigation of about 1,010,400 acres (4,090 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--11 years (1928-39, prior to Fort Peck Lake reaching operational level), 7,219 ft^3/s (204.4 m^3/s), 5,230,000 acre-ft/yr (6.45 km^3/yr); 37 years (1943-80, after operational level was reached), 10,640 ft^3/s (301.3 m^3/s), 7,709,000 acre-ft/yr (9.51 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,800 ft^3/s (1,890 m^3/s) Mar. 25, 1939, gage height, 14.4 ft (4.39 m), ice present, from rating curve extended above 39,000 ft^3/s (1,100 m^3/s); maximum gage height, 15.64 ft (4.767 m) Mar. 27, 1960 (backwater from ice); minimum daily discharge, 320 ft^3/s (9.06 m^3/s) Dec. 10, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 14, 1908, reached a stage of about 20 ft (6.1 m), present site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge not determined; maximum gage height, 8.53 ft (2.600 m) Feb. 29 (backwater from ice); minimum daily discharge, 6,340 ft^3/s (180 m^3/s) Apr. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9490	7290	7970	13200	14000	12500	7240	6690	7000	13900	12700	13300
2	9730	7330	7780	12200	14000	13000	6880	7000	7000	13800	13300	13500
3	9040	7380	8100	12400	14000	13500	6500	6830	7000	14200	13400	13700
4	9840	7410	7460	12600	14000	13000	6340	6880	7500	13200	13000	13800
5	9620	7380	7000	11200	14500	13000	6460	6480	8000	12700	12800	13000
6	9250	7530	6880	11000	14500	12500	7430	6740	8500	12900	12700	12600
7	9200	7730	6900	11000	15000	12500	7360	7330	8000	13100	13100	12800
8	8860	7480	7140	11000	15000	13000	7430	7020	8000	13800	13300	11900
9	8990	7880	6810	11000	15000	13500	6740	7260	8000	14800	13400	11800
10	8840	7700	7070	11000	15000	13000	6620	6880	8500	13100	13500	12500
11	8330	7580	7800	11000	15000	12500	6860	7290	8000	13700	13200	11800
12	7480	7190	10400	11500	15000	13000	6500	6950	8500	14400	12600	12000
13	7750	7430	12300	12000	14500	13000	6830	6950	8500	14100	12700	12000
14	6900	7600	13400	12500	15000	13000	7500	7140	8500	13500	12800	12000
15	7040	7630	12600	13000	15500	13000	7240	7000	8500	13500	13400	11500
16	7260	7550	11000	13000	15500	13000	7210	7000	8000	13000	13300	12100
17	8000	7880	14200	13000	16000	14000	8100	7000	8500	13500	13700	11800
18	7160	7650	14500	13000	14500	13500	6930	7000	8280	13000	13000	11900
19	7480	7160	12800	13000	13000	13000	7680	7000	7500	13500	13500	12100
20	7680	7780	12900	13000	13000	12400	6780	7000	8300	13000	13600	12000
21	6830	8100	12800	13000	13500	11500	6710	7000	8610	13500	13500	12000
22	7310	7950	12600	13000	13000	11600	6460	7000	9250	13500	13200	12000
23	8070	8300	12400	13500	13000	11400	6600	7000	10300	12700	13300	12300
24	8020	7820	12700	14000	13000	9680	6500	7500	10700	12900	13200	12300
25	7460	7600	12800	14000	12500	7850	6600	6500	12900	13100	13300	12300
26	7090	8120	12600	14000	13000	7330	6810	6500	14200	13100	12800	12000
27	6880	7970	12700	13000	12500	7070	6620	6500	13000	13000	12800	12500
28	6690	7460	13000	12000	13000	6930	6500	6500	14400	13200	13000	12600
29	7430	8580	12400	13000	12000	7210	6570	7000	12700	12800	13200	12300
30	8000	9730	12400	14000	---	7480	6430	7000	13200	12800	13500	12400
31	7040	---	12400	14000	---	7120	---	7000	---	13200	13300	---
TOTAL	248760	232160	333810	389100	407500	355070	206430	214940	279340	414500	408100	370800
MEAN	8025	7739	10770	12550	14050	11450	6881	6934	9311	13370	13160	12360
MAX	9840	9700	14500	14000	16000	14000	8100	7500	14400	14800	13700	13800
MIN	6690	7160	6810	11000	12000	6930	6340	6480	7000	12700	12600	11500
AC-FT	493400	460500	662100	771800	808300	704300	409500	426300	554100	822200	809500	735500

CAL YR 1979 TOTAL 5131350 MEAN 14060 MAX 34200 MIN 6690 AC-FT 10180000
WTR YR 1980 TOTAL 3860510 MEAN 10550 MAX 16000 MIN 6340 AC-FT 7657000

06177000 MISSOURI RIVER NEAR WOLF POINT, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-51, 1961-62, 1965-68, 1970, 1979 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1979 to current year.

INSTRUMENTATION.--Temperature recorder since July 31, 1979.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 18.5°C June 12, 13, 21, 1980; minimum, 0.0°C on many days during the winter period.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 18.5°C June 12, 13, 21; minimum, 0.0°C on many days during November to March.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN OCTOBER	MEAN	MAX	MIN NOVEMBER	MEAN	MAX	MIN DECEMBER	MEAN	MAX	MIN JANUARY	MEAN
1	---	---	---	6.0	5.5	5.5	1.0	.5	.5	.0	.0	.0
2	---	---	---	5.5	5.0	5.0	2.0	1.0	1.0	.0	.0	.0
3	---	---	---	6.0	5.0	5.5	3.0	2.0	2.5	.0	.0	.0
4	---	---	---	6.5	5.5	6.0	4.0	3.0	3.5	.0	.0	.0
5	---	---	---	6.5	5.5	6.0	4.0	3.0	3.5	.0	.0	.0
6	---	---	---	5.5	4.5	5.0	3.5	3.0	3.5	.0	.0	.0
7	---	---	---	5.0	4.5	4.5	3.0	1.5	2.5	.0	.0	.0
8	---	---	---	4.5	3.5	4.0	1.5	1.0	1.5	.0	.0	.0
9	---	---	---	3.5	3.0	3.5	3.0	1.5	2.0	.0	.0	.0
10	---	---	---	4.5	3.5	4.0	3.5	1.5	3.0	.0	.0	.0
11	---	---	---	5.0	4.0	4.5	1.5	.0	.5	.0	.0	.0
12	---	---	---	5.0	4.5	4.5	.0	.0	.0	.0	.0	.0
13	---	---	---	5.5	4.5	5.0	.0	.0	.0	.0	.0	.0
14	---	---	---	5.5	4.5	5.0	1.0	.0	.5	.0	.0	.0
15	---	---	---	6.0	5.0	5.5	1.0	.0	.0	.0	.0	.0
16	---	---	---	6.0	5.5	5.5	.0	.0	.0	.0	.0	.0
17	---	---	---	6.5	5.5	6.0	.0	.0	.0	.0	.0	.0
18	---	---	---	6.5	6.0	6.5	2.0	.0	1.0	.0	.0	.0
19	---	---	---	6.0	4.5	5.5	2.5	2.0	2.5	.0	.0	.0
20	---	---	---	4.5	3.5	4.0	2.5	2.0	2.0	.0	.0	.0
21	---	---	---	4.0	3.5	3.5	2.0	1.5	2.0	.0	.0	.0
22	---	---	---	4.0	3.5	3.5	1.5	1.0	1.5	.0	.0	.0
23	---	---	---	4.0	3.5	3.5	1.5	1.0	1.0	.0	.0	.0
24	9.5	---	---	3.5	3.0	3.5	1.5	1.0	1.0	.0	.0	.0
25	10.0	9.0	9.5	3.5	3.0	3.0	1.5	1.0	1.5	.0	.0	.0
26	9.5	8.5	9.0	4.0	3.0	3.5	2.0	1.5	1.5	.0	.0	.0
27	9.0	8.0	8.5	3.5	1.0	2.0	1.5	1.0	1.0	.0	.0	.0
28	8.5	8.0	8.5	1.0	.0	.0	1.0	.5	.5	.0	.0	.0
29	8.5	8.0	8.5	.0	.0	.0	.5	.0	.5	.0	.0	.0
30	8.0	7.5	8.0	.5	.0	.0	.5	.0	.0	.0	.0	.0
31	7.5	6.0	7.0	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	10.0	6.0	8.5	6.5	.0	4.0	4.0	.0	1.5	.0	.0	.0

MISSOURI RIVER MAIN STEM

06177000 MISSOURI RIVER NEAR WOLF POINT, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN FEBRUARY	MEAN	MAX	MIN MARCH	MEAN	MAX	MIN APRIL	MEAN	MAX	MIN MAY	MEAN
1	.0	.0	.0	.0	.0	.0	4.5	4.0	4.5	16.5	13.0	14.5
2	.0	.0	.0	.0	.0	.0	4.5	3.5	4.0	15.0	13.5	14.5
3	.0	.0	.0	.0	.0	.0	4.5	3.5	4.0	15.5	13.0	14.0
4	.0	.0	.0	.0	.0	.0	5.5	3.5	4.5	15.0	13.0	14.0
5	.0	.0	.0	.0	.0	.0	6.5	5.0	6.0	15.0	13.0	14.0
6	.0	.0	.0	.0	.0	.0	6.5	5.5	6.0	13.5	12.0	13.0
7	.0	.0	.0	.0	.0	.0	5.5	3.5	4.0	12.5	10.5	11.5
8	.0	.0	.0	.0	.0	.0	5.0	3.0	4.0	12.0	10.0	11.0
9	.0	.0	.0	.0	.0	.0	6.0	4.0	5.0	11.5	9.5	10.5
10	.0	.0	.0	.0	.0	.0	6.0	5.0	5.5	11.0	8.5	9.5
11	.0	.0	.0	.0	.0	.0	5.5	4.5	5.0	12.0	9.0	10.5
12	.0	.0	.0	.0	.0	.0	6.0	4.5	5.5	13.0	10.5	11.5
13	.0	.0	.0	.0	.0	.0	7.5	5.0	6.5	12.5	10.5	11.5
14	.0	.0	.0	.0	.0	.0	9.0	6.5	7.5	12.5	10.5	11.0
15	.0	.0	.0	.0	.0	.0	8.0	7.0	7.5	13.0	10.0	11.5
16	.0	.0	.0	.0	.0	.0	9.0	7.0	8.5	12.5	11.5	12.0
17	.0	.0	.0	1.0	.0	.5	9.5	7.0	8.5	14.5	12.0	13.0
18	.0	.0	.0	3.0	1.0	2.0	10.5	8.0	9.5	14.5	12.0	13.5
19	.0	.0	.0	3.5	1.0	3.0	10.5	9.0	10.0	15.0	13.0	14.0
20	.0	.0	.0	3.5	2.5	3.0	11.5	9.0	10.5	15.0	14.5	15.0
21	.0	.0	.0	3.5	2.5	3.0	12.0	10.0	11.0	16.5	14.0	15.0
22	.0	.0	.0	3.5	2.5	3.0	11.5	10.0	10.5	17.0	15.0	16.0
23	.0	.0	.0	3.5	2.5	3.0	10.5	9.0	10.0	18.0	15.5	17.0
24	.0	.0	.0	4.0	3.0	3.5	11.0	8.5	10.0	18.0	16.0	17.0
25	.0	.0	.0	4.0	2.5	3.0	12.0	9.5	10.5	16.5	14.5	16.0
26	.0	.0	.0	2.5	2.0	2.5	12.5	10.0	11.0	16.0	13.5	14.5
27	.0	.0	.0	4.0	1.5	3.0	13.0	10.5	12.0	15.5	13.5	14.5
28	.0	.0	.0	5.0	3.0	4.0	14.0	11.5	12.5	17.5	15.0	16.0
29	.0	.0	.0	6.0	4.0	5.0	14.5	12.0	13.0	17.0	15.0	16.0
30	---	---	---	6.0	5.0	5.5	---	10.5	---	15.5	14.0	14.5
31	---	---	---	5.5	4.5	5.0	---	---	---	14.5	13.0	13.5
MONTH	.0	.0	.0	6.0	.0	1.5	14.5	3.0	8.0	18.0	8.5	13.5

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
1	15.5	13.0	14.0	16.5	14.0	15.0	16.5	14.5	15.5	15.0	13.0	14.0
2	16.5	14.0	15.5	17.5	14.5	15.5	17.0	14.5	15.5	14.5	14.0	14.5
3	17.5	15.0	16.0	16.0	14.5	15.5	16.0	13.5	15.0	14.0	13.0	13.5
4	17.5	15.5	16.5	16.5	14.5	15.5	13.5	12.0	12.5	14.5	12.5	13.5
5	17.0	15.5	16.5	17.5	15.0	16.0	14.5	12.0	13.0	15.5	13.0	14.0
6	15.5	13.5	14.0	18.0	15.5	16.5	17.5	14.5	16.0	16.5	14.5	15.5
7	13.5	11.5	13.0	17.0	15.0	16.0	17.5	16.0	17.0	17.0	15.5	16.0
8	14.5	11.5	13.5	16.0	14.5	15.0	16.0	14.0	15.0	16.5	14.5	15.5
9	15.5	13.5	14.5	16.0	13.5	15.0	16.5	14.0	15.0	14.5	13.0	13.5
10	17.5	14.5	16.0	17.5	15.0	16.0	16.0	15.0	15.5	14.0	12.5	13.5
11	17.5	15.5	17.0	17.0	15.5	16.0	16.5	14.0	15.0	15.0	14.0	14.5
12	18.5	16.5	17.5	16.0	14.5	15.5	16.0	15.0	15.5	15.0	14.5	14.5
13	18.5	16.0	17.5	16.0	14.5	15.5	16.0	14.5	15.0	14.5	13.5	14.0
14	17.5	15.5	16.5	16.5	14.5	15.5	16.5	14.0	15.0	14.0	12.5	13.5
15	16.0	14.5	15.0	16.5	15.0	15.5	16.0	15.0	15.5	14.0	12.5	13.5
16	17.5	14.5	16.0	16.0	14.0	15.0	16.0	15.0	15.5	12.5	11.0	12.0
17	17.5	15.0	16.5	16.0	14.5	15.5	16.0	14.0	15.0	12.5	12.0	12.0
18	17.5	15.0	16.5	16.0	14.5	15.0	16.0	15.0	15.5	13.5	12.5	12.5
19	17.0	15.0	16.5	16.0	14.5	15.0	16.0	14.0	15.0	14.5	13.0	14.0
20	17.5	15.5	16.5	15.0	13.5	14.0	15.5	14.0	15.0	15.0	14.0	14.5
21	18.5	15.5	17.0	15.5	13.0	14.0	16.0	14.0	15.0	15.0	14.0	15.0
22	18.0	16.0	16.5	16.0	13.5	14.5	16.0	15.0	15.5	14.0	13.0	13.5
23	17.5	15.0	16.0	17.0	15.0	16.0	16.0	14.5	15.0	14.0	13.0	13.5
24	17.0	14.5	15.5	16.0	14.5	15.5	17.0	15.0	16.0	14.0	13.0	13.5
25	16.0	14.0	15.0	16.0	14.0	15.0	16.0	14.5	15.0	13.5	12.5	13.0
26	15.5	14.0	15.0	16.0	13.5	15.0	14.5	13.5	14.0	14.0	12.5	13.0
27	15.5	14.5	15.0	17.0	14.5	15.5	15.5	12.5	14.0	14.5	13.0	13.5
28	14.5	12.0	13.0	16.5	15.0	15.5	16.5	15.0	15.5	15.0	14.0	14.5
29	16.5	12.5	14.5	16.0	14.5	15.5	15.5	14.5	15.0	15.0	14.0	14.5
30	15.5	14.0	15.0	16.0	14.0	15.0	14.5	13.0	13.5	15.0	14.0	14.5
31	---	---	---	16.5	14.5	15.5	14.0	13.0	13.5	---	---	---
MONTH	18.5	11.5	15.5	18.0	13.0	15.5	17.5	12.0	15.0	17.0	11.0	14.0
YEAR	18.5	.0	3.0									

06177500 REDWATER RIVER AT CIRCLE, MT

LOCATION.--Lat 47°24'51", long 105°34'30", in SW¼SW¼ sec.11, T.19 N., R.48 E., McCone County, Hydrologic Unit 10060002, on left bank at Circle, 1 mi (2 km) upstream from Horse Creek, and at mile 110.2 (177.3 km), revised.

DRAINAGE AREA.--547 mi^2 (1,417 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to November 1929, March to November 1930, July 1931 to December 1932, March to June 1933, February to November 1934, April 1935 to December 1936, April 1937 to June 1972, October 1974 to current year. Monthly discharge only for some periods, published in WSP 1309. Prior to October 1967, published as Redwater Creek at Circle.

REVISED RECORDS.--WSP 1006: 1929-30, 1932-33, 1935-39. WSP 1509: 1929, 1934. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Sharp-crested weir since Sept. 24, 1938. Altitude of gage is 2,394.32 ft (729.789 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to June 1, 1941, and Mar. 23, 1943, to Feb. 16, 1948, nonrecording gage at site 0.3 mi (0.5 km) upstream at same datum. June 1, 1941, to Mar. 22, 1943, nonrecording gage at site 200 ft (61 m) upstream at datum 2.8 ft (0.85 m) lower. Feb. 26, 1948, to May 7, 1950, nonrecording gage at site 200 ft (61 m) upstream at present datum.

REMARKS.--Water-discharge records good except those during winter period, which are poor. Few minor diversions for irrigation of hay meadows above station.

AVERAGE DISCHARGE.--42 years (1931-32, 1935-36, 1937-71, 1975-80), 14.0 ft^3/s (0.396 m^3/s), 10,140 acre-ft/yr (12.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,730 ft^3/s (191 m^3/s) July 14, 1957, gage height, 12.77 ft (3.892 m); no flow at time most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7.0 ft^3/s (0.20 m^3/s) Mar. 22, gage height, 4.17 ft (1.271 m), no peaks above base of 80 ft^3/s (2.27 m^3/s); no flow July 11-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.18	.92	1.4	1.4	.50	3.0	4.7	.79	.06	.03	.01	.03
2	.18	.96	1.4	1.4	.60	3.5	4.5	.70	.03	.01	.03	.03
3	.18	1.0	1.5	1.4	.70	3.0	4.4	.79	.03	.03	.03	.03
4	.24	1.3	1.6	1.3	.90	2.5	4.2	.66	.03	.01	.06	.03
5	.24	1.4	1.6	.90	1.4	2.2	4.2	.58	.03	.01	.06	.03
6	.25	.96	1.8	.70	1.4	2.1	4.1	.47	.03	.01	.03	.01
7	.25	1.1	1.8	.50	1.4	2.0	3.9	.44	.03	.01	.06	.01
8	.25	1.1	1.6	.40	1.5	2.0	3.7	.44	.03	.01	.10	.01
9	.25	1.1	1.8	.30	1.5	2.0	3.6	.44	.01	.01	.10	.01
10	.25	1.3	1.8	.30	1.4	2.0	3.5	.40	.10	.01	.10	.01
11	.25	1.3	1.9	.30	1.4	2.2	3.6	.37	.10	.00	.10	.01
12	.25	1.3	1.5	.30	1.3	2.5	3.6	.44	.13	.00	.10	.06
13	.25	1.4	1.6	.35	1.1	2.8	3.4	.44	.92	.00	.10	.03
14	.25	1.4	1.5	.40	.90	3.0	3.3	.30	2.8	.00	.06	.03
15	.25	1.4	1.6	.70	.80	3.5	3.3	.30	1.4	.01	.10	.03
16	.25	1.4	1.5	1.5	.80	4.0	3.3	.30	.92	.01	.13	.01
17	.27	1.4	.96	1.5	.80	4.5	3.2	.30	.58	.01	.18	.01
18	.33	1.4	1.1	1.5	.90	4.5	2.6	.30	.40	.01	.03	.01
19	.44	1.4	1.6	1.2	.90	4.5	2.4	.27	.30	.15	.01	.03
20	.58	1.4	2.0	1.3	1.0	5.0	2.2	.24	.24	.13	.01	.03
21	.62	1.3	2.0	1.3	1.1	5.8	2.0	.21	.18	.06	.01	.06
22	.66	1.3	2.0	1.3	1.2	6.4	1.8	.18	.13	.03	.01	.06
23	.66	1.3	1.9	1.3	1.3	6.1	1.8	.13	.10	.01	.03	.06
24	.66	1.4	1.6	1.4	1.4	6.1	1.5	.40	.06	.01	.03	.06
25	.70	1.4	1.5	1.3	1.5	5.8	1.4	.06	.03	.01	.01	.06
26	.75	1.5	1.6	1.1	1.6	5.5	1.4	.03	.03	.01	.03	.01
27	.70	1.4	1.6	.80	1.9	5.3	1.1	.06	.03	.01	.03	.01
28	.75	1.3	1.5	.60	2.1	5.2	1.2	.06	.03	.01	.03	.01
29	.79	1.3	1.6	.50	2.4	4.8	1.1	.06	.03	.01	.06	.01
30	.96	1.4	1.5	.50	---	4.7	.87	.06	.01	.01	.03	.01
31	.92	---	1.5	.50	---	4.7	---	.06	---	.01	.03	---
TOTAL	13.56	38.54	49.86	28.25	35.70	121.2	85.87	10.28	8.80	.64	1.70	.80
MEAN	.44	1.28	1.61	.91	1.23	3.91	2.86	.33	.29	.021	.055	.027
MAX	.96	1.5	2.0	1.5	2.4	6.4	4.7	.79	2.8	.15	.18	.06
MIN	.18	.92	.96	.30	.50	2.0	.87	.03	.01	.00	.01	.01
AC-FT	27	76	99	56	71	240	170	20	17	1.3	3.4	1.6

CAL YR 1979 TOTAL 10404.70 MEAN 28.5 MAX 865 MIN .10 AC-FT 20640
WTR YR 1980 TOTAL 395.20 MEAN 1.08 MAX 6.4 MIN .00 AC-FT 784

06177500 REDWATER RIVER AT CIRCLE, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 17...	0930	.28	3	4220	8.5	9.0	10.0	9.0	84	770	130	79
NOV 06...	1415	.96	1	5000	8.4	3.5	2.5	11.0	85	1100	580	120
DEC 04...	1500	1.8	3	5600	7.8	12.0	.0	8.9	66	1300	1000	140
JAN 08...	1530	.35	0	5800	8.1	-25.0	.0	9.0	64	1300	700	130
FEB 19...	1430	.91	1	5780	7.9	11.5	.0	9.4	69	1100	910	190
MAR 26...	1230	5.5	3	3150	8.2	2.0	.5	11.6	85	850	540	110
APR 22...	1600	1.7	2	3730	8.4	15.0	14.0	8.6	88	930	540	110
MAY 13...	1400	.35	1	4400	8.5	16.0	16.5	9.0	97	930	450	110
JUN 10...	1130	.10	0	4420	8.7	21.0	20.5	8.0	94	890	430	93
JUL 28...	1700	.01	0	5000	8.7	22.0	29.0	7.8	108	830	240	70
AUG 27...	1700	.02	13	4600	8.9	14.0	17.0	8.2	90	570	0	48
SEP 17...	1600	.01	10	4650	8.9	14.0	15.5	9.6	102	570	0	45

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 17...	140	760	12	12	640	1700	17	1.6	--	--	4.2	3100
NOV 06...	190	860	11	12	500	2300	19	.8	--	--	6.4	3810
DEC 04...	240	840	10	14	340	2700	18	.8	.2	.00	8.4	4170
JAN 08...	240	950	11	11	610	2300	18	.9	--	--	9.8	4020
FEB 19...	140	900	12	11	140	2600	18	.9	--	--	11	3960
MAR 26...	140	450	6.7	8.6	310	1500	12	.2	.1	.00	4.7	2410
APR 22...	160	500	7.1	9.1	390	1500	18	.6	--	--	2.5	2540
MAY 13...	160	700	10	10	480	1900	6.7	1.2	--	--	.7	3180
JUN 10...	160	800	12	11	460	1900	19	1.2	.2	.00	4.9	3270
JUL 28...	160	910	14	12	590	2100	22	1.6	.2	.00	4.8	3640
AUG 27...	110	840	15	9.0	690	1600	17	1.9	--	--	7.4	2990
SEP 17...	110	840	15	11	700	1700	24	2.1	.1	.00	3.3	3150

06177500 REDWATER RIVER AT CIRCLE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 17...	4.22	2.34	.01	.01	.94	.95	.03	--	--	700	40
NOV 06...	5.18	9.88	.01	.08	.58	.66	.01	--	--	770	30
DEC 04...	5.67	20.3	.15	.06	.62	.68	.01	19	.3	790	20
JAN 08...	5.47	3.80	.18	.13	1.2	1.3	.02	--	--	820	20
FEB 19...	5.39	9.73	.15	.11	.55	.66	.01	--	--	820	30
MAR 26...	3.28	35.8	.04	.08	.92	1.0	.03	12	--	510	60
APR 22...	3.45	11.7	.01	.00	1.1	1.1	.06	--	--	590	60
MAY 13...	4.32	3.01	.73	.04	.96	1.0	.04	--	--	650	90
JUN 10...	4.45	.88	.01	.01	.73	.74	.04	25	1.2	720	50
JUL 28...	4.95	.10	.00	.00	1.7	1.7	.07	43	1.0	830	50
AUG 27...	4.07	.16	.40	.06	1.3	1.4	.35	--	--	680	40
SEP 17...	4.28	.09	.00	.07	1.8	1.9	.07	17	.8	670	40

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAR 26...	1230	2	0	0	0	0	0	0
JUL 28...	1700	5	4	0	0	0	0	10

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAR 26...	0	3	0	420	2	0	140	110
JUL 28...	10	5	3	650	7	2	100	10

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR 26...	.0	.1	4	0	1	1	20	20
JUL 28...	.1	.1	4	5	0	0	20	20

06177500 REDWATER RIVER AT CIRCLE, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT					
17...	0930	10.0	.28	84	.06
NOV					
06...	1415	2.5	.96	51	.13
JAN					
08...	1530	.0	.35	128	.12
FEB					
19...	1430	.0	.91	117	.29
MAR					
26...	1230	.5	5.5	35	.52
APR					
22...	1600	14.0	1.7	204	.94
MAY					
13...	1400	16.5	.35	190	.18
JUN					
10...	1130	20.5	.10	121	.03
AUG					
27...	1700	17.0	.02	132	.01
SEP					
17...	1600	15.5	.01	61	.00

06177825 REDWATER RIVER NEAR VIDA, MT

LOCATION.--Lat 47°54'07", long 105°12'54", in SW¼ sec.24, T.25 N., R.50 E., McCone County, Hydrologic Unit 10060002, on right bank at downstream side of bridge on FAS Highway 201, 400 ft (122 m) downstream from East Redwater River, 13.7 mi (22.0 km) northeast of Vida post office, and at mile 30.6 (49.2 km).

DRAINAGE AREA.--1,974 mi^2 (5,113 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,100 ft (640 m), from topographic map.

REMARKS.--Water-discharge records poor except those for May 19 to Sept. 30, which are good. Diversions for irrigation of about 4,500 acres (18.2 km^2) above station and many stock ponds and small reservoirs on upstream tributaries.

AVERAGE DISCHARGE.--5 years, 55.6 ft^3/s (1.575 m^3/s), 40,280 acre-ft/yr (49.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,230 ft^3/s (233 m^3/s) Apr. 10, 1979, gage height, 8.82 ft (2.688 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined, but occurred on Mar. 24 (backwater from ice); no peaks above base of 500 ft^3/s (14.2 m^3/s); maximum gage height, 1.83 ft (0.558 m) Mar. 17 (backwater from ice); minimum daily discharge, 0.01 ft^3/s (0.0002 m^3/s) Aug. 1-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	6.4	6.4	2.9	.80	2.5	29	11	3.1	1.5	.01	.87
2	4.5	6.4	5.7	2.9	1.0	2.8	32	11	3.3	1.5	.01	.98
3	5.4	6.4	6.0	2.9	1.2	3.2	33	11	2.7	1.5	.01	1.1
4	6.4	6.7	7.4	2.8	1.4	3.5	33	11	2.7	1.2	.01	1.1
5	7.8	6.7	10	2.7	1.4	3.3	30	9.1	2.7	1.1	.01	1.1
6	7.8	7.1	12	2.5	1.4	3.1	27	8.6	2.5	.98	.01	.98
7	7.8	7.8	11	2.3	1.5	3.0	42	7.1	2.3	.87	.03	.98
8	7.8	7.4	9.9	2.0	1.5	2.9	43	11	2.5	.76	.03	.98
9	7.4	7.4	12	1.8	1.6	2.8	35	12	2.5	.76	.14	.76
10	9.9	7.1	11	1.4	1.7	2.8	35	9.5	2.3	.57	.57	.87
11	9.9	7.4	9.0	1.2	1.8	2.8	31	8.6	2.1	.57	.76	.87
12	7.8	7.8	7.0	1.0	1.8	2.9	31	11	2.5	.42	.76	2.1
13	7.4	7.8	6.0	1.2	1.8	3.5	28	7.8	3.1	.36	.76	2.3
14	7.4	7.8	4.5	1.4	1.8	4.5	27	7.1	2.9	.36	.57	2.0
15	7.8	8.6	3.1	1.6	1.8	12	26	7.4	2.5	.36	.50	1.8
16	7.8	9.0	2.9	1.6	1.8	22	26	16	2.5	.23	.87	1.7
17	7.8	9.5	2.6	1.6	1.6	31	26	13	2.5	.23	2.1	1.7
18	6.7	9.5	3.0	1.6	1.6	37	25	9.1	2.3	.23	2.1	1.7
19	6.4	9.1	3.1	1.6	1.6	46	21	7.1	2.3	.36	2.3	2.1
20	6.0	8.2	3.3	1.6	1.4	40	21	6.4	2.1	.50	2.0	2.1
21	6.4	7.4	3.6	1.4	1.4	47	19	6.0	2.1	.50	1.8	2.0
22	6.4	7.4	3.9	1.4	1.4	48	18	5.4	1.8	.57	1.7	2.1
23	6.4	7.1	3.5	1.4	1.4	46	17	4.8	2.5	.50	1.7	2.1
24	6.4	7.6	3.2	1.6	1.4	50	16	3.8	2.5	.23	1.7	3.1
25	6.7	8.1	3.1	1.8	1.6	45	15	3.3	1.8	.14	1.4	3.8
26	7.1	8.6	3.0	1.6	1.6	38	14	2.9	1.7	.09	1.1	2.7
27	7.1	8.2	2.9	1.4	1.9	32	14	2.7	1.7	.03	.98	2.7
28	7.1	7.8	2.9	1.2	2.3	30	14	3.1	1.7	.03	.98	2.5
29	6.4	7.1	2.9	1.0	2.5	35	13	3.1	1.7	.03	1.1	2.3
30	6.0	6.7	2.8	.80	---	33	12	2.9	1.5	.02	1.1	2.3
31	6.0	---	2.9	.80	---	30	---	2.9	---	.02	.87	---
TOTAL	216.3	230.1	170.6	53.00	46.00	665.6	753	235.7	70.4	16.52	27.98	53.69
MEAN	6.98	7.67	5.50	1.71	1.59	21.5	25.1	7.60	2.35	.53	.90	1.79
MAX	9.9	9.5	12	2.9	2.5	50	43	16	3.3	1.5	2.3	3.8
MIN	4.5	6.4	2.6	.80	.80	2.5	12	2.7	1.5	.02	.01	.76
AC-FT	429	456	338	105	91	1320	1490	468	140	33	55	106

CAL YR 1979 TOTAL 43982.70 MEAN 121 MAX 5810 MIN 1.5 AC-FT 87240
WTR YR 1980 TOTAL 2538.89 MEAN 6.94 MAX 50 MIN .01 AC-FT 5040

06177825 REDWATER RIVER NEAR VIDA, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 17...	1400	8.0	0	2870	8.6	16.0	11.0	9.2	88	440	0	41
NOV 07...	1030	7.8	3	3220	8.5	-1.5	1.0	12.6	92	530	0	54
DEC 05...	1100	9.9	3	3820	8.3	1.0	.0	10.9	78	560	0	58
JAN 09...	1200	1.8	71	4290	8.2	-20.0	.0	10.0	72	750	0	85
FEB 20...	1115	1.4	40	4100	7.9	-1.0	.0	9.2	66	680	0	92
MAR 27...	1200	33	0	2450	8.3	4.0	1.0	12.0	88	410	69	50
APR 23...	1030	15	0	3190	8.5	14.0	12.5	9.0	87	530	70	64
MAY 19...	1300	7.0	1	4950	8.8	23.0	20.0	9.6	110	620	14	52
JUN 09...	1600	2.4	0	3690	8.8	26.0	25.0	9.0	114	490	0	41
JUL 28...	1400	.03	0	4350	9.0	22.0	27.0	9.6	126	470	0	25
AUG 27...	1430	1.0	0	3400	9.1	19.0	19.0	8.0	91	550	11	140
SEP 17...	1400	1.6	10	3500	9.1	11.0	12.5	9.2	91	570	35	45

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 17...	81	480	10	11	480	960	11	.5	--	--	4.6	1880
NOV 07...	96	560	11	10	530	1100	13	.6	--	--	--	2150
DEC 05...	100	700	13	9.6	700	1400	17	.6	.1	.00	9.8	2720
JAN 09...	130	850	14	11	800	1700	18	.8	--	--	11	3290
FEB 20...	110	710	12	9.8	740	1500	17	.9	--	--	15	2900
MAR 27...	69	400	8.6	9.2	340	900	9.0	.3	.1	.00	5.3	1650
APR 23...	90	530	10	9.2	460	1100	11	.5	--	--	2.3	2080
MAY 19...	120	860	15	12	610	1800	17	.3	--	--	6.1	3240
JUN 09...	93	680	13	11	580	1400	17	.6	.2	.00	4.7	2600
JUL 28...	100	860	17	13	620	1600	19	1.0	.1	--	1.2	2990
AUG 27...	49	650	12	9.0	490	1300	16	.6	--	--	.1	2490
SEP 17...	110	630	12	10	460	1300	17	.7	.0	.00	.3	2430

06177825 REDWATER RIVER NEAR VIDA, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT 17...	2.56	40.6	.05	.02	.96	.98	.02	--	--	320	30
NOV 07...	2.92	45.3	.25	.04	.67	.71	.01	--	--	320	20
DEC 05...	3.70	72.7	.60	.05	.47	.52	.01	11	.1	350	10
JAN 09...	4.47	16.0	.14	.06	1.2	1.3	.03	--	--	390	30
FEB 20...	3.94	11.0	.35	.10	.44	.54	.01	--	--	350	30
MAR 27...	2.24	147	.03	.04	1.2	1.2	.05	18	--	230	100
APR 23...	2.83	84.2	.01	.01	.93	.94	.03	--	--	260	210
MAY 19...	4.41	61.2	.01	.04	2.2	2.2	.13	--	--	550	70
JUN 09...	3.54	16.8	.02	.04	.83	.87	.04	13	--	440	30
JUL 28...	4.07	.24	.01	.00	1.4	1.4	.06	16	.5	600	50
AUG 27...	3.39	6.72	.43	.07	1.2	1.3	.06	--	--	460	60
SEP 17...	3.30	10.5	.00	.06	.70	.76	.03	9.4	--	410	40

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
MAR 27...	1200	2	1	0	0	0	0	0
JUL 28...	1400	5	5	0	0	1	0	10

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
MAR 27...	0	4	5	460	0	0	70	50
JUL 28...	0	11	8	440	7	0	60	20

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR 27...	.0	.1	2	4	0	0	20	20
JUL 28...	.1	.2	4	3	0	0	40	10

06177825 REDWATER RIVER NEAR VIDA, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
17...	1400	11.0	8.0	54	1.2
NOV					
07...	1030	1.0	7.8	30	.63
DEC					
05...	1100	.0	9.9	42	1.1
JAN					
09...	1200	.0	1.8	89	.43
FEB					
20...	1115	.0	1.4	104	.39
MAR					
27...	1200	1.0	33	22	2.0
APR					
23...	1030	12.5	15	129	5.2
MAY					
19...	1300	20.0	7.0	140	2.6
JUN					
09...	1600	25.0	2.4	108	.70
JUL					
28...	1400	27.0	.03	33	.00
AUG					
27...	1430	19.0	1.0	63	.17
SEP					
17...	1400	12.5	1.6	20	.09

06178000 POPLAR RIVER AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 48°59'30", long 105°41'40", in SE¼ sec.6, T.37 N., R.46 E., Daniels County, Hydrologic Unit 10060003, on left bank 0.5 mi (0.8 km) south of international boundary, 1.5 mi (2.4 km) upstream from Coal Creek, 18.5 mi (29.8 km) northwest of Scobey, Mt, and at mile 135.7 (218.3 km).

DRAINAGE AREA.--362 mi^2 (938 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1931 to current season (seasonal records only for most seasons). Published as Middle Fork Poplar River at international boundary, March 1931 to November 1975.

REVISED RECORDS.--WSP 1389: 1931, 1935-37(M), 1939-40, 1942(M), 1943, 1948(M), 1950(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder and concrete control since September 1977. Altitude of gage is 2,460 ft (750 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor. A few small diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by the United States and Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft^3/s (360 m^3/s) Apr. 6, 1954, gage height, 10.25 ft (3.124 m), from floodmark, from rating curve extended above 2,500 ft^3/s (70.8 m^3/s) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT SEASON.--Maximum discharge, 315 ft^3/s (8.92 m^3/s) Apr. 1, gage height, 4.37 ft (1.332 m), backwater from ice; no flow Feb. 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1980 TO DECEMBER 1980
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1		---	.05	271	7.3	2.3	1.5	.13	1.6	2.6		
2		---	.10	132	7.0	1.7	1.4	.13	1.1	2.6		
3		---	.05	76	6.8	1.8	1.1	.14	.86	2.6		
4		---	.05	55	7.1	1.8	3.5	.18	.77	2.6		
5		---	.05	52	6.9	2.2	1.4	.08	.67	2.6		
6		---	.05	49	6.9	2.1	.41	.11	.55	2.9		
7		---	.05	85	6.7	1.7	.30	.09	.46	2.3		
8		---	.05	166	6.8	1.5	.19	.07	.38	2.3		
9		---	.10	118	6.6	1.1	.10	.14	.32	2.0		
10		---	.05	67	6.2	.72	.07	.14	.29	1.7		
11		---	.05	40	6.2	.47	.06	.13	.27	1.7		
12		---	.05	35	5.9	.33	.02	.15	.33	1.7		
13		---	.05	40	5.4	.41	.06	.13	.32	1.7		
14		---	.05	31	5.3	.42	.07	.16	.35	2.0		
15		---	.05	27	5.0	.63	.07	.13	.45	2.3		
16		---	.10	23	5.1	.48	.05	.20	.45	2.3		
17		---	.30	19	5.5	.52	.04	.15	.60	2.6		
18		---	.50	17	6.0	.49	.04	3.2	.75	2.6		
19		---	.63	15	6.2	.49	.09	7.3	1.9	2.9		
20		---	.39	15	6.7	.47	.14	4.0	2.9	2.9		
21		---	.21	13	6.5	.31	.06	2.2	3.7	3.2		
22		---	.39	12	5.3	.27	.05	1.2	3.3	3.5		
23		---	2.1	11	4.5	.32	.05	.75	3.4	4.8		
24		---	5.9	10	3.9	.25	.07	.47	3.2	4.4		
25		---	9.8	9.9	3.4	.19	.07	.29	2.7	4.1		
26		---	29	9.9	2.7	.20	.08	.20	2.5	3.8		
27		---	65	9.4	2.4	.41	.16	.19	2.3	3.8		
28		.00	61	9.4	2.0	.57	.13	.21	2.3	3.2		
29		.00	68	8.2	2.2	1.3	.09	9.0	2.3	3.5		
30		---	81	7.5	2.3	2.0	.05	7.8	2.6	3.5		
31		---	173	---	2.5	---	.10	3.0	---	3.5		
TOTAL		---	498.17	1433.3	163.3	27.45	11.52	42.07	43.62	88.2		
MEAN		---	16.1	47.8	5.27	.92	.37	1.36	1.45	2.85		
MAX		---	173	271	7.3	2.3	3.5	9.0	3.7	4.8		
MIN		---	.05	7.5	2.0	.19	.02	.07	.27	1.7		
AC-FT		---	988	2840	324	54	23	83	87	175		

THE SEASON MARCH TO OCTOBER AC-FT 4,580

06178000 POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-65, 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)
OCT 19...	1130	.16	2	1940	8.2	14.0	7.0	2.8	8.8	81	300
NOV 28...	1045	2.3	1	1460	8.1	-12.0	.0	1.2	12.4	91	400
DEC 14...	0945	E3.0	1	1460	8.1	2.0	.5	2.5	11.1	86	430
JAN 09...	1500	E.50	3	1680	7.9	-23.0	.0	5.9	5.9	44	390
MAR 25...	1400	9.9	72	1040	8.0	-2.0	.5	2.9	10.1	76	230
APR 02...	1100	121	3	372	7.9	2.0	1.0	4.3	10.4	79	120
29...	1800	7.5	0	1080	8.7	25.0	18.0	3.8	9.6	111	340
JUN 26...	1100	.23	3	1800	8.9	18.0	17.5	.90	7.8	88	250
JUL 29...	1930	.06	1	1800	8.9	22.5	24.0	14	11.4	148	230
AUG 19...	1500	6.7	2	1100	8.5	22.0	21.0	8.5	7.3	90	250
SEP 16...	1430	.39	2	1020	8.5	16.5	11.5	7.4	10.5	106	250

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT 19...	0	48	44	330	8.3	9.8	600	450	12	.7	12
NOV 28...	0	68	57	200	4.3	9.8	570	260	7.8	.5	14
DEC 14...	0	73	60	190	4.0	8.6	580	240	7.3	.5	15
JAN 09...	0	69	54	280	6.1	8.3	660	270	9.6	.6	17
MAR 25...	0	35	34	140	4.0	13	280	250	6.4	.2	13
APR 02...	0	21	17	32	1.3	11	130	62	2.9	.1	9.0
29...	0	57	47	150	3.6	8.7	430	240	5.3	.5	11
JUN 26...	0	27	45	340	9.3	9.1	590	370	11	.6	.8
JUL 29...	0	24	42	350	10	10	600	420	10	.6	1.6
AUG 19...	0	32	41	170	4.7	12	420	200	7.4	.5	12
SEP 16...	0	36	38	230	6.4	11	490	240	9.2	.6	6.8

06178000 POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, ORTHOPHOSPHATE DISSOL. (MG/L AS P) (00671)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT 19...	1270	1.73	.55	.01	.01	.67	.68	.01	.03	1900	30
NOV 28...	961	1.31	5.97	.01	.02	.39	.41	.01	.02	1200	20
DEC 14...	944	1.28	E7.65	.02	.01	.48	.49	.01	.01	1100	30
JAN 09...	1110	1.51	E1.50	.01	.15	1.1	1.2	.04	.01	1400	90
MAR 25...	661	.90	17.7	.15	.08	1.7	1.8	.26	.19	800	150
APR 02...	234	.32	76.4	.14	.00	1.7	1.7	.20	.16	360	240
29...	779	1.06	15.8	.00	.01	.62	.63	.05	.01	800	70
JUN 26...	1160	1.58	.72	.03	.09	1.0	1.1	.02	.00	1800	100
JUL 29...	1220	1.66	.20	.05	.00	1.4	1.4	.07	.02	1700	170
AUG 19...	729	.99	13.2	.00	.05	1.3	1.3	.10	.00	1500	90
SEP 16...	868	1.18	.91	.06	.02	.76	.78	.05	.01	1400	30

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)
DEC 14...	0945	--	30	--	1	--	< 1	--	< 1
JAN 09...	1500	--	--	--	--	--	--	--	--
MAR 25...	1400	--	0	--	2	--	< 1	--	< 1
APR 02...	1100	200	200	4	2	0	< 1	1	< 1
29...	1800	--	--	--	--	--	--	--	--
JUN 26...	1100	0	0	5	5	0	< 1	0	< 1
JUL 29...	1930	--	--	--	--	--	--	--	--
AUG 19...	1500	--	--	--	--	--	--	--	--
SEP 16...	1430	--	0	--	2	--	1	--	< 1

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
DEC 14...	--	0	--	0	--	--	0	--	--
JAN 09...	--	--	--	--	--	--	--	90	--
MAR 25...	--	0	--	3	--	--	0	--	--
APR 02...	0	0	6	6	580	1	0	--	50
29...	--	--	--	--	--	--	--	--	--
JUN 26...	0	0	5	4	250	2	0	--	20
JUL 29...	--	--	--	--	--	--	--	--	--
AUG 19...	--	--	--	--	--	--	--	--	--
SEP 16...	--	0	--	3	--	--	0	--	--

06178000 POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
DEC 14...	20	--	.8	--	3	--	0	.0	--	6
JAN 09...	--	--	.2	--	--	--	--	--	--	--
MAR 25...	60	--	--	--	0	--	0	2.0	--	4
APR 02...	40	.2	.2	4	6	0	0	3.0	10	4
29...	--	.9	--	--	--	--	--	--	--	--
JUN 26...	7	.3	.7	0	2	0	0	3.0	20	< 3
JUL 29...	--	.3	--	--	--	--	--	--	--	--
AUG 19...	--	.5	--	--	--	--	--	--	--	--
SEP 16...	7	--	.3	--	3	--	0	3.0	--	6

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT 19...	1130	7.0	.16	15	.01
NOV 28...	1045	.0	2.3	54	.34
DEC 14...	0945	.5	E3.0	49	.40
MAR 25...	1400	.5	9.9	9	.24
APR 02...	1100	1.0	121	17	5.6
29...	1800	18.0	7.5	36	.73
JUN 26...	1100	17.5	.23	20	.01
JUL 29...	1930	24.0	.06	36	.01
AUG 19...	1500	21.0	6.7	15	.27
SEP 16...	1430	11.5	.39	38	.04

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'00", long 105°24'30", in SW¼ sec.3, T.1, R.26 W., second meridian, Hydrologic Unit 10060003, on left bank 10 ft (3 m) north of international boundary, 400 ft (122 m) southwest of Canadian East Poplar Port of Entry, 20 mi (32 km) upstream from mouth, 14 mi (23 km) north of Scobey, Mt, and at mile 21.9 (35.2 km).

DRAINAGE AREA.--534 mi^2 (1,383 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1931 to current year (seasonal records only in most seasons prior to October 1974). Prior to March 1962, published as East Fork Poplar River at international boundary.

REVISED RECORDS.--WSP 1389: 1932, 1939, 1942-43, 1947. WSP 1729: Drainage area.

GAGE.--Water-stage recorder and concrete control since July 1978. Rock and concrete control used July 1968 to July 1978. Datum of gage is 2,410.92 ft (734.848 m) above mean sea level (International Boundary Survey datum). Prior to Oct. 5, 1953, water-stage recorder at site 80 ft (24 m) upstream at same datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Flow regulated by Morrison Dam at Cookson Reservoir. Several diversions for irrigation above station.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,020 ft^3/s (114 m^3/s) Apr. 23, 1975, gage height, 12.01 ft (3.661 m); maximum gage height, 12.8 ft (3.90 m) Mar. 25, 1943, from floodmark (backwater from ice); no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 26 ft^3/s (0.74 m^3/s) Apr. 16, gage height, 5.74 ft (1.750 m); minimum, 1.7 ft^3/s (0.048 m^3/s) Jan. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	4.4	4.2	4.4	4.2	3.8	5.4	10	3.0	2.6	2.5	2.7
2	5.0	4.4	4.2	4.4	4.2	4.0	4.5	9.8	2.8	2.5	2.5	2.7
3	4.6	4.4	4.3	4.5	4.2	4.0	4.0	10	2.8	2.6	2.6	2.8
4	4.5	4.5	4.5	4.4	4.2	4.0	3.9	10	3.1	2.9	3.1	2.7
5	4.7	4.5	4.5	4.5	4.2	4.0	4.0	10	3.0	2.7	2.7	2.6
6	4.5	4.5	4.6	4.3	4.1	4.0	4.0	10	2.8	2.7	2.7	2.6
7	4.5	3.7	4.3	4.2	4.1	4.0	3.8	9.9	2.7	2.5	2.8	2.6
8	4.7	6.0	4.4	4.1	4.0	4.0	3.5	9.8	2.7	2.5	2.7	2.7
9	4.6	4.8	4.4	4.1	4.0	3.9	3.5	10	2.6	2.6	2.9	2.4
10	5.0	4.5	4.3	4.1	4.0	4.0	3.5	10	2.6	2.5	3.6	2.5
11	4.8	4.5	4.2	4.2	4.0	4.0	3.5	10	2.6	2.5	3.2	2.6
12	4.7	4.4	4.2	4.2	4.0	4.0	3.6	14	2.6	2.3	3.0	2.7
13	4.6	4.4	4.2	4.5	4.0	4.0	3.6	23	2.8	2.5	2.8	2.6
14	4.7	4.5	4.3	4.5	3.9	4.0	3.8	23	2.8	2.6	2.7	2.6
15	4.8	4.5	3.8	4.5	4.0	4.1	7.3	23	2.7	2.6	2.6	3.0
16	4.7	4.5	3.9	4.5	4.0	4.0	21	24	2.7	2.6	3.0	2.5
17	4.7	4.5	4.0	4.6	4.0	4.1	17	24	2.6	2.5	3.0	2.8
18	4.7	4.6	4.5	4.6	4.0	4.7	10	23	2.6	2.5	3.0	2.7
19	4.6	4.6	4.5	4.5	4.0	4.9	7.2	24	2.6	2.7	3.0	3.1
20	5.4	4.4	4.6	4.5	4.0	4.4	6.8	23	2.8	3.6	3.0	3.0
21	4.8	4.3	4.6	4.6	4.0	4.3	7.4	23	2.6	3.0	2.8	3.0
22	4.5	4.3	4.5	4.6	4.0	4.1	8.8	18	2.6	2.8	2.6	2.9
23	4.6	4.3	4.5	4.6	4.0	4.2	8.9	6.9	2.7	2.7	2.7	2.9
24	4.5	4.3	4.5	4.6	4.0	4.3	9.5	7.6	2.6	2.7	2.8	3.0
25	4.5	4.2	4.5	4.6	4.0	4.1	9.7	6.5	2.6	2.5	2.8	2.8
26	4.6	4.2	4.6	4.5	4.0	4.2	9.7	6.8	2.4	2.6	2.4	2.9
27	4.4	4.1	4.5	4.4	4.2	4.4	9.6	6.6	2.9	2.8	2.3	2.7
28	4.5	4.1	4.5	4.3	4.2	5.1	9.6	6.6	3.1	2.7	2.6	2.8
29	4.4	4.0	4.5	4.3	4.0	5.7	9.8	6.3	2.7	2.8	2.6	2.8
30	4.4	4.2	4.5	4.2	---	6.1	10	4.5	2.7	2.5	2.7	2.9
31	4.5	---	4.4	4.2	---	5.8	---	3.5	---	2.6	2.6	---
TOTAL	144.0	132.6	135.5	136.5	117.5	134.2	216.9	406.8	81.8	82.2	86.3	82.6
MEAN	4.65	4.42	4.37	4.40	4.05	4.33	7.23	13.1	2.73	2.65	2.78	2.75
MAX	5.4	6.0	4.6	4.6	4.2	6.1	21	24	3.1	3.6	3.6	3.1
MIN	4.4	3.7	3.8	4.1	3.9	3.8	3.5	3.5	2.4	2.3	2.3	2.4
AC-FT	286	263	269	271	233	266	430	807	162	163	171	164

CAL YR 1979 TOTAL 8971.0 MEAN 24.6 MAX 270 MIN 1.8 AC-FT 17790
WTR YR 1980 TOTAL 1756.9 MEAN 4.80 MAX 24 MIN 2.3 AC-FT 3480

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-65, 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1975 to current year.

INSTRUMENTATION.--Temperature recorder since June 17, 1975.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 29.5°C July 6, 1975, July 25, 26, 1978; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 25.5°C July 9; minimum, 0.5°C on many days during November to April.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	COLOR (PLATINUM COBALT UNITS) (00080)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)
OCT 18...	1500	4.7	0	1250	8.5	7.0	8.5	20	2.5	11.1
24...	0840	4.2	--	1320	8.4	1.5	5.0	--	--	--
NOV 28...	1330	4.0	1	1390	8.0	-7.0	1.0	20	32	11.6
DEC 13...	1030	4.0	0	1460	7.8	-18.0	.5	20	5.8	12.6
JAN 10...	1000	4.1	73	1440	7.6	-22.0	.5	30	7.0	7.2
FEB 27...	1310	4.1	0	1300	7.7	5.5	.5	30	3.4	9.1
MAR 26...	1030	4.1	3	1340	7.9	.0	.5	25	4.8	8.8
APR 08...	1230	3.5	2	1330	8.3	4.5	3.0	30	5.0	11.7
21...	1630	7.6	0	1190	8.6	28.0	17.0	20	5.5	12.2
29...	1100	9.1	0	1140	8.4	23.0	13.5	20	3.9	9.4
JUN 25...	1715	2.5	1	1510	8.6	26.5	21.0	30	1.6	7.8
JUL 29...	1300	2.7	1	1440	7.8	31.0	22.5	20	1.1	9.5
AUG 20...	1600	3.0	2	1430	8.3	24.0	20.5	10	3.4	9.5
SEP 17...	1500	2.8	10	1440	8.2	10.0	10.5	15	1.6	9.2

DATE	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)
OCT 18...	104	K40	K13	320	0	61	40	160	3.9	12
24...	--	--	--	320	0	62	40	190	4.6	11
NOV 28...	87	K13	K2	380	0	75	46	180	4.0	12
DEC 13...	94	< 1	< 1	410	0	76	53	200	4.3	12
JAN 10...	56	K23	K2	410	0	82	51	180	3.8	12
FEB 27...	69	K21	< 1	350	0	70	43	170	3.9	11
MAR 26...	67	< 1	< 1	370	0	72	47	180	4.1	10
APR 08...	94	< 1	< 1	360	0	70	46	170	3.9	8.6
21...	138	--	--	290	0	53	39	150	3.8	12
29...	98	< 1	K2	290	0	52	39	150	3.8	14
JUN 25...	95	< 1	K6	370	0	63	52	210	4.7	8.9
JUL 29...	120	< 1	K10	360	0	59	51	200	4.6	9.2
AUG 20...	114	K17	K20	380	0	64	53	200	4.5	10
SEP 17...	90	K12	K2	370	0	66	50	200	4.5	11

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT										
18...	--	--	380	--	260	5.9	.3	9.6	--	779
24...	540	7	450	3.5	270	6.4	.3	9.9	874	865
NOV										
28...	--	--	500	--	290	6.2	.3	11	--	923
DEC										
13...	--	--	520	--	330	6.4	.3	12	--	1000
JAN										
10...	--	--	490	--	280	6.3	.3	12	--	940
FEB										
27...	--	--	460	--	260	5.5	.3	10	--	848
MAR										
26...	--	--	460	--	280	6.1	.2	11	--	884
APR										
08...	--	--	420	--	270	6.2	.3	12	--	837
21...	--	--	390	--	220	5.1	.3	6.6	--	722
29...	--	--	400	--	230	6.8	.3	5.6	--	739
JUN										
25...	--	--	510	--	320	6.5	.4	12	--	982
JUL										
29...	--	--	470	--	320	5.6	.5	11	--	941
AUG										
20...	--	--	490	--	310	5.8	.3	11	--	957
SEP										
17...	--	--	500	--	300	7.8	.3	13	--	951

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)
OCT										
18...	1.06	9.89	.09	.06	.15	--	.06	.64	.70	.01
24...	1.19	9.91	--	--	.25	.26	.19	.81	1.0	.02
NOV										
28...	1.26	9.97	--	--	.22	--	.58	.42	1.0	.03
DEC										
13...	1.36	10.8	.22	.04	.26	--	.56	.94	1.5	.04
JAN										
10...	1.28	10.4	.20	.02	.22	--	.53	.43	.96	.07
FEB										
27...	1.15	9.39	.22	.01	.23	--	.56	.34	.90	.02
MAR										
26...	1.20	9.79	.19	.01	.20	--	.51	.79	1.3	.04
APR										
08...	1.14	7.91	.12	.01	.13	--	.25	1.6	1.8	.05
21...	.98	14.8	.02	.01	.03	--	.30	.37	.67	.06
29...	1.01	18.2	.01	.00	.01	--	.03	.97	1.0	.05
JUN										
25...	1.34	6.63	.00	.01	.01	--	.10	.83	.93	.06
JUL										
29...	1.28	6.86	.03	.00	.03	--	.03	1.2	1.2	.05
AUG										
20...	1.30	7.75	.00	.01	.00	--	.00	.65	.65	.02
SEP										
17...	1.29	7.19	.00	.00	.00	--	.03	.41	.44	.02

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHOPH OSPHATE TOTAL (MG/L AS P) (70507)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGNIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70953)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L) (70954)
OCT									
18...	--	.01	--	--	--	1500	20	--	--
24...	.01	--	--	9.4	.1	1500	10	--	--
NOV									
28...	--	--	--	--	--	1500	20	--	--
DEC									
13...	--	.01	34	--	--	1600	--	.386	.095
JAN									
10...	--	.03	--	--	--	1600	40	--	--
FEB									
27...	--	.08	--	--	--	1500	60	--	--
MAR									
26...	--	.01	9.3	--	--	1400	40	.298	.072
APR									
08...	--	.03	--	--	--	1400	30	--	--
21...	--	.05	--	--	--	1300	30	--	--
29...	--	.01	--	--	--	1200	30	--	--
JUN									
25...	--	.04	27	19	.9	1900	120	--	--
JUL									
29...	--	.01	--	--	--	1700	110	--	--
AUG									
20...	--	.01	--	--	--	1800	10	--	--
SEP									
17...	--	.00	10	--	--	1800	20	.435	.052

DATE	TIME	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)
DEC							
13...	1030	1	< 1	< 1	0	0	1
JAN							
10...	1000	--	--	--	--	--	--
MAR							
26...	1030	4	< 1	< 1	0	1	0
APR							
29...	1100	--	--	--	--	--	--
JUN							
25...	1715	7	< 1	< 1	0	3	0
JUL							
29...	1300	--	--	--	--	--	--
AUG							
20...	1600	--	--	--	--	--	--
SEP							
17...	1500	3	< 1	< 1	0	1	1

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
DEC						
13...	130	--	.1	0	0	< 3
JAN						
10...	--	.3	--	--	--	--
MAR						
26...	140	--	.2	0	0	4
APR						
29...	--	.3	--	--	--	--
JUN						
25...	40	--	.8	3	0	5
JUL						
29...	--	.5	--	--	--	--
AUG						
20...	--	.3	--	--	--	--
SEP						
17...	170	--	.0	1	0	5

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	11.5	10.0	11.0	3.0	1.5	2.0	1.0	1.0	1.0	.5	.5	.5
2	11.5	10.0	10.5	2.0	1.0	1.5	1.0	1.0	1.0	.5	.5	.5
3	10.0	8.0	9.5	3.0	2.0	2.5	1.0	1.0	1.0	.5	.5	.5
4	11.0	8.0	9.5	3.0	2.5	3.0	1.0	1.0	1.0	.5	.5	.5
5	10.5	9.0	10.0	3.0	2.5	3.0	1.0	1.0	1.0	.5	.5	.5
6	10.5	8.5	9.5	3.0	2.0	2.5	1.5	1.0	1.0	.5	.5	.5
7	12.0	10.0	11.0	3.0	2.0	2.5	1.0	.5	1.0	.5	.5	.5
8	11.5	9.0	10.0	2.5	1.0	1.5	1.0	1.0	1.0	.5	.5	.5
9	9.0	7.5	8.0	1.0	1.0	1.0	1.0	1.0	1.0	.5	.5	.5
10	12.0	8.0	10.0	1.5	1.0	1.0	1.0	.5	1.0	.5	.5	.5
11	12.0	11.0	11.5	1.5	1.0	1.5	1.0	.5	1.0	.5	.5	.5
12	11.0	9.0	10.0	1.5	1.0	1.5	1.0	1.0	1.0	.5	.5	.5
13	9.5	8.0	8.5	1.5	1.0	1.5	1.0	.5	1.0	.5	.5	.5
14	10.0	8.0	9.0	1.5	1.5	1.5	1.0	1.0	1.0	.5	.5	.5
15	10.5	9.0	9.5	2.5	1.5	2.0	1.0	.5	.5	.5	.5	.5
16	10.0	8.0	9.0	2.5	2.0	2.5	1.0	.5	1.0	.5	.5	.5
17	9.0	8.0	8.5	2.5	2.5	2.5	.5	.5	.5	.5	.5	.5
18	8.5	7.5	8.0	2.5	2.5	2.5	.5	.5	.5	.5	.5	.5
19	8.0	7.0	7.5	2.5	2.0	2.5	.5	.5	.5	.5	.5	.5
20	8.0	6.0	6.5	2.5	2.0	2.5	.5	.5	.5	.5	.5	.5
21	6.0	5.0	5.5	2.5	1.5	2.0	.5	.5	.5	.5	.5	.5
22	5.5	4.5	5.0	2.5	2.0	2.0	.5	.5	.5	.5	.5	.5
23	6.5	4.5	5.5	2.0	1.5	2.0	.5	.5	.5	.5	.5	.5
24	7.0	5.5	6.5	2.0	1.5	1.5	.5	.5	.5	.5	.5	.5
25	7.0	6.5	7.0	1.5	1.5	1.5	.5	.5	.5	.5	.5	.5
26	8.0	7.0	7.5	1.5	1.0	1.5	.5	.5	.5	.5	.5	.5
27	8.0	6.5	7.5	1.0	1.0	1.0	.5	.5	.5	.5	.5	.5
28	8.0	6.5	7.5	1.0	.5	1.0	.5	.5	.5	.5	.5	.5
29	6.5	5.5	6.0	1.0	1.0	1.0	.5	.5	.5	.5	.5	.5
30	5.5	4.5	5.0	1.0	1.0	1.0	.5	.5	.5	.5	.5	.5
31	4.5	3.0	4.0	---	---	---	.5	.5	.5	.5	.5	.5
MONTH	12.0	3.0	8.0	3.0	.5	2.0	1.5	.5	.5	.5	.5	.5
		FEBRUARY			MARCH			APRIL			MAY	
1	.5	.5	.5	.5	.5	.5	1.0	.5	.5	16.5	14.0	15.0
2	.5	.5	.5	.5	.5	.5	1.0	.5	1.0	17.0	15.0	16.0
3	.5	.5	.5	.5	.5	.5	1.5	1.0	1.0	18.0	15.0	16.5
4	.5	.5	.5	.5	.5	.5	3.0	1.5	2.5	---	15.0	---
5	.5	.5	.5	.5	.5	.5	4.5	2.5	3.5	---	---	---
6	.5	.5	.5	.5	.5	.5	4.0	3.0	3.5	---	---	---
7	.5	.5	.5	.5	.5	.5	3.5	3.0	3.0	---	---	---
8	.5	.5	.5	.5	.5	.5	5.0	2.5	4.0	---	---	---
9	.5	.5	.5	.5	.5	.5	7.0	3.5	5.0	---	---	---
10	.5	.5	.5	.5	.5	.5	7.0	4.5	5.5	---	---	---
11	.5	.5	.5	.5	.5	.5	5.5	4.5	5.0	---	---	---
12	.5	.5	.5	.5	.5	.5	8.0	5.0	6.5	---	---	---
13	.5	.5	.5	.5	.5	.5	10.5	6.5	8.5	---	---	---
14	.5	.5	.5	.5	.5	.5	11.5	9.0	10.0	---	---	---
15	.5	.5	.5	.5	.5	.5	10.5	9.0	10.0	---	---	---
16	.5	.5	.5	.5	.5	.5	10.0	8.0	9.0	---	---	---
17	.5	.5	.5	.5	.5	.5	11.5	8.0	9.5	---	---	---
18	.5	.5	.5	.5	.5	.5	12.0	9.0	10.5	---	---	---
19	.5	.5	.5	.5	.5	.5	13.5	10.5	12.0	---	---	---
20	.5	.5	.5	.5	.5	.5	15.5	11.5	13.5	---	---	---
21	.5	.5	.5	.5	.5	.5	17.0	13.5	15.0	---	---	---
22	.5	.5	.5	.5	.5	.5	14.0	12.0	13.0	---	---	---
23	.5	.5	.5	.5	.5	.5	13.0	10.5	11.5	---	---	---
24	.5	.5	.5	.5	.5	.5	12.5	9.5	11.0	---	---	---
25	.5	.5	.5	.5	.5	.5	13.5	10.0	12.0	---	---	---
26	.5	.5	.5	.5	.5	.5	14.5	11.5	13.0	---	---	---
27	.5	.5	.5	.5	.5	.5	15.5	12.5	14.0	---	---	---
28	.5	.5	.5	1.0	.5	.5	16.0	13.0	14.5	19.5	---	---
29	.5	.5	.5	1.0	.5	.5	15.5	13.0	14.5	19.5	16.5	18.0
30	---	---	---	1.0	.5	.5	16.0	13.0	14.5	19.5	16.0	18.0
31	---	---	---	1.0	.5	.5	---	---	---	18.5	16.5	17.5
MONTH	.5	.5	.5	1.0	.5	.5	17.0	.5	8.5	19.5	14.0	17.0

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN	MAX	MIN AUGUST	MEAN	MAX	MIN SEPTEMBER	MEAN
1	18.5	15.5	17.0	22.0	17.5	20.0	23.5	20.5	22.0	16.0	14.5	15.5
2	18.5	16.0	17.5	24.0	19.5	22.0	23.5	21.5	22.5	16.5	14.5	15.5
3	18.5	16.0	17.5	23.0	21.5	22.0	23.0	19.0	21.0	15.5	13.5	14.5
4	20.0	16.5	18.5	25.0	21.0	22.5	18.5	15.5	17.0	15.0	12.0	13.5
5	19.5	17.5	18.5	24.5	22.0	23.0	19.0	15.0	17.0	16.5	13.0	15.0
6	17.5	15.5	17.0	24.5	21.5	23.0	20.5	18.0	19.0	18.5	14.5	16.5
7	19.0	14.0	16.5	23.5	20.5	22.0	19.5	18.5	19.0	19.0	16.5	18.0
8	20.5	15.5	18.0	23.0	20.5	21.5	21.0	17.0	19.0	18.0	14.0	15.5
9	22.0	17.0	19.5	25.5	21.0	22.5	20.0	18.5	19.0	15.5	12.5	14.0
10	22.5	19.0	21.0	25.0	22.0	23.5	21.5	18.0	19.5	16.0	13.0	14.5
11	23.5	21.0	22.0	23.5	21.0	22.5	21.0	19.5	20.0	17.5	15.5	16.5
12	24.5	21.0	23.0	23.5	20.5	22.0	20.5	19.0	19.5	18.0	16.0	17.0
13	24.0	21.0	22.5	23.5	21.0	22.0	21.0	17.5	19.0	16.5	15.0	16.0
14	23.0	20.0	21.5	24.0	20.5	22.0	21.0	18.0	19.5	15.5	14.0	15.0
15	21.0	19.5	20.5	23.0	21.5	22.5	19.0	18.0	18.0	15.0	10.5	13.0
16	23.0	19.0	21.0	23.5	20.5	22.0	17.5	17.0	17.5	11.5	9.5	10.5
17	24.0	20.5	22.0	24.0	21.5	22.5	19.5	16.0	17.5	11.0	10.0	10.5
18	21.0	18.5	20.0	24.0	20.0	22.0	21.5	18.5	19.5	10.0	9.5	9.5
19	20.0	17.5	19.0	22.5	20.5	21.5	21.5	19.0	20.0	12.0	9.5	10.5
20	23.0	18.5	20.5	20.5	19.5	20.0	20.5	19.5	20.0	13.5	10.5	12.0
21	25.0	20.5	22.5	22.5	18.5	20.5	19.0	17.5	18.0	13.0	12.0	12.5
22	24.0	22.0	23.0	24.5	21.0	22.5	18.0	16.0	17.0	12.5	10.5	11.5
23	24.5	22.0	23.0	24.5	22.5	23.5	19.0	16.0	17.5	12.0	10.5	11.5
24	21.5	20.0	21.0	24.0	20.5	22.0	20.5	17.0	18.5	11.5	10.0	11.0
25	21.0	18.0	19.5	21.5	18.5	20.0	18.0	14.5	16.0	11.0	9.0	10.0
26	20.0	18.0	19.0	23.5	19.5	21.0	17.0	14.0	15.5	12.0	9.5	10.5
27	18.0	16.0	16.5	23.5	21.0	22.0	17.5	14.0	16.0	12.5	10.5	11.5
28	15.5	14.5	15.0	24.0	21.0	22.5	18.5	15.5	17.0	14.0	11.5	12.5
29	19.5	14.0	17.0	23.0	21.0	22.5	16.5	15.5	16.0	14.5	12.5	13.5
30	20.0	18.0	19.0	22.0	19.0	20.5	17.0	14.0	15.5	14.5	13.0	13.5
31	---	---	---	23.0	19.5	21.5	16.0	15.0	15.5	---	---	---
MONTH	25.0	14.0	19.5	25.5	17.5	22.0	23.5	14.0	18.5	19.0	9.0	13.5
YEAR	25.5	.5	8.5									

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
18...	1500	8.5	4.7	14	.18
DEC					
13...	1030	.5	4.0	20	.22
JAN					
10...	1000	.5	4.1	24	.27
MAR					
26...	1030	.5	4.1	28	.31
APR					
08...	1230	3.0	3.5	38	.36
21...	1630	17.0	7.6	33	.68
29...	1100	13.5	9.1	47	1.2
JUN					
25...	1715	21.0	2.5	71	.48
JUL					
29...	1300	22.5	2.7	9	.07
AUG					
20...	1600	20.5	3.0	35	.28
SEP					
17...	1500	10.5	2.8	27	.20

06179000 EAST FORK POPLAR RIVER NEAR SCOBEY, MT

LOCATION.--Lat 48°51'08", long 105°25'15", in NE¼NW¼ sec.27,T.36 N. R.48 E., Daniels County, Hydrologic Unit 10060003, on right bank at downstream side of bridge on State Highway 13, 2.5 mi (4.0 km) upstream from mouth, and 4 mi (6 km) north of Scobey.

DRAINAGE AREA.--722 mi^2 (1,870 km^2).

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
17...	1530	4.8	0	1380	8.7	19.0	9.0	9.3	9.2	87	310
24...	1410	5.1	--	1390	8.8	13.0	7.5	--	--	--	280
NOV											
29...	1415	4.3	2	1750	8.4	-2.5	.0	4.4	13.0	95	460
DEC											
13...	1430	5.3	0	1850	8.5	-12.0	.5	4.6	12.6	94	510
JAN											
10...	1545	E5.0	73	1840	8.2	-27.0	.0	3.7	11.1	84	480
MAR											
27...	1130	E5.0	0	1230	7.8	-2.5	.5	6.6	8.3	63	290
APR											
07...	1545	16	10	801	8.2	3.0	.5	7.0	12.1	91	220
29...	1400	10	0	1200	8.7	27.0	16.0	6.3	9.2	99	120
JUN											
26...	1410	2.0	3	1300	9.7	19.0	18.0	24	8.0	91	190
JUL											
31...	1030	1.8	0	1560	9.7	24.0	20.5	15	7.4	89	240
AUG											
19...	1800	2.6	2	1320	9.2	25.5	22.5	23	7.5	94	230
SEP											
18...	1030	2.5	3	1550	9.4	8.0	10.0	21	8.0	77	280

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT											
17...	0	31	56	240	6.0	13	--	--	460	--	320
24...	0	31	50	210	5.4	11	400	65	440	1.3	320
NOV											
29...	0	78	64	240	4.9	13	--	--	580	--	390
DEC											
13...	0	88	70	270	5.2	14	--	--	590	--	390
JAN											
10...	0	88	64	250	5.0	14	--	--	660	--	380
MAR											
27...	0	52	40	150	3.8	12	--	--	390	--	240
APR											
07...	0	37	30	99	2.9	6.3	--	--	240	--	160
29...	0	21	16	210	8.4	5.0	--	--	430	--	120
JUN											
26...	0	16	36	210	6.7	13	--	--	380	--	280
JUL											
31...	0	15	50	270	7.5	10	--	--	480	--	350
AUG											
19...	0	17	45	220	6.3	10	--	--	390	--	310
SEP											
18...	0	18	56	260	6.8	9.2	--	--	480	--	350

06179000 EAST FORK POPLAR RIVER NEAR SCOBEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT										
17...	8.0	.3	1.6	--	948	1.29	12.3	.02	--	.05
24...	8.0	.4	2.0	909	896	1.24	12.5	.00	.02	.09
NOV										
29...	9.3	.3	7.7	--	1150	1.56	13.4	.01	--	.02
DEC										
13...	9.6	.3	7.9	--	1210	1.65	17.3	.01	--	.02
JAN										
10...	9.1	.4	5.2	--	1210	1.65	E16.3	.04	--	.06
MAR										
27...	6.4	.2	9.7	--	746	1.01	E10.1	.78	--	.10
APR										
07...	4.5	.2	6.1	--	488	.66	21.1	.42	--	.06
29...	5.6	.5	7.1	--	644	.88	17.4	.00	--	.04
JUN										
26...	7.3	.3	2.8	--	796	1.08	4.30	.02	--	.09
JUL										
31...	8.2	.5	4.4	--	999	1.36	4.86	.04	--	.00
AUG										
19...	7.0	.3	2.0	--	860	1.17	6.04	.00	--	.01
SEP										
18...	8.8	.3	1.7	--	1000	1.36	6.75	.00	--	.00

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHOPHOSPHATE DISSOL. (MG/L AS P) (00671)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT										
17...	1.4	1.4	.05	--	.00	--	--	--	1700	20
24...	1.0	1.1	.03	.01	--	--	9.8	.1	1600	20
NOV										
29...	.66	.68	.02	--	.01	--	--	--	1700	20
DEC										
13...	.88	.90	.02	--	.01	34	--	--	1900	30
JAN										
10...	.65	.71	.02	--	.00	--	--	--	2000	30
MAR										
27...	2.5	2.6	.06	--	.03	--	--	--	1300	120
APR										
07...	.75	.81	.05	--	.00	--	--	--	650	60
29...	.50	.54	.02	--	.00	--	--	--	480	30
JUN										
26...	2.4	2.5	.07	--	.00	--	--	--	1600	30
JUL										
31...	2.0	2.0	.09	--	.01	--	--	--	2000	20
AUG										
19...	1.2	1.2	.06	--	.00	--	--	--	1700	30
SEP										
18...	1.2	1.2	.05	--	.00	--	--	--	1900	40

06179000 EAST FORK POPLAR RIVER NEAR SCOBEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)
DEC 13...	1430	--	20	--	2	--	< 1	--	< 1
JAN 10...	1545	--	--	--	--	--	--	--	--
MAR 27...	1130	--	0	--	2	--	< 1	--	< 1
APR 29...	1400	0	0	3	2	0	< 1	0	< 1
JUN 26...	1410	--	0	--	10	--	< 1	--	1
JUL 31...	1030	--	--	--	--	--	--	--	--
AUG 19...	1800	--	--	--	--	--	--	--	--
SEP 18...	1030	400	200	4	7	0	< 1	0	< 1

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
DEC 13...	--	0	--	0	--	--	1	--	< 1
JAN 10...	--	--	--	--	--	--	--	--	--
MAR 27...	--	0	--	10	--	--	0	--	50
APR 29...	0	0	7	4	440	16	1	40	6
JUN 26...	--	0	--	4	--	--	0	--	5
JUL 31...	--	--	--	--	--	--	--	--	--
AUG 19...	--	--	--	--	--	--	--	--	--
SEP 18...	10	0	3	3	640	1	1	40	5

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
DEC 13...	--	.2	--	0	--	0	1.0	--	< 3
JAN 10...	.7	.9	--	--	--	--	--	--	--
MAR 27...	--	1.0	--	4	--	0	1.0	--	5
APR 29...	.1	.1	29	0	0	0	1.0	60	6
JUN 26...	--	.4	--	4	--	0	11	--	4
JUL 31...	.4	--	--	--	--	--	--	--	--
AUG 19...	.7	--	--	--	--	--	--	--	--
SEP 18...	.4	.6	2	4	0	0	8.0	10	7

06179000 EAST FORK POPLAR RIVER NEAR SCOBEY, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT					
17...	1530	9.0	4.8	13	.17
NOV					
29...	1415	.0	4.3	113	1.3
DEC					
13...	1430	.5	5.3	72	1.0
MAR					
27...	1130	.5	E5.0	11	.15
APR					
07...	1545	.5	16	23	.99
29...	1400	16.0	10	41	1.1
JUN					
26...	1410	18.0	2.0	38	.21
JUL					
31...	1030	20.5	1.8	38	.18
AUG					
19...	1800	22.5	2.6	37	.26
SEP					
18...	1030	10.0	2.5	27	.18

06179200 POPLAR RIVER ABOVE WEST FORK, NEAR BREDETTE, MT

LOCATION.--Lat 48°33'05", long 105°21'55", in NW¼SW¼SW¼ sec.4, T.32 N., R.49 E., Roosevelt County, Hydrologic Unit 10060004, on county road bridge, 3.8 mi (6.1 km) upstream from mouth, and 4.4 mi (7.1 km) northwest of Bredette.

DRAINAGE AREA.--1,745 mi^2 (4,520 km^2).

PERIOD OF RECORD.--Water years 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
18...	1030	9.4	0	1610	8.6	9.0	8.0	6.9	9.1	83	280
24...	1520	10	--	1550	8.6	12.5	7.5	--	--	--	280
NOV											
27...	1415	16	2	1800	8.6	-10.0	.0	2.2	12.7	93	330
DEC											
11...	1500	14	0	1810	8.6	-10.0	.5	3.7	12.4	93	330
JAN											
08...	1430	6.9	0	2150	8.5	-30.0	.0	2.1	11.3	83	460
MAR											
26...	1430	E25	3	950	8.3	4.0	.5	9.6	10.9	82	190
APR											
02...	1530	E250	3	711	8.2	6.0	1.0	14	12.2	92	160
30...	1800	24	1	1220	8.8	25.0	17.5	9.8	9.2	103	260
JUN											
24...	1600	2.9	0	1740	8.9	26.0	22.5	19	7.6	95	270
JUL											
31...	1330	1.4	0	1800	9.0	31.0	24.0	12	9.8	125	250
AUG											
20...	1830	3.4	2	1680	8.9	25.0	21.0	4.9	8.5	103	250
SEP											
18...	1330	2.3	3	1740	8.7	10.0	11.0	5.9	9.2	90	260

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT										
18...	0	29	50	290	7.6	11	--	--	550	--
24...	0	32	49	280	7.3	9.6	600	36	550	2.7
NOV										
27...	0	45	53	300	7.2	11	--	--	620	--
DEC										
11...	0	45	52	300	7.2	9.3	--	--	560	--
JAN										
08...	0	69	69	350	7.3	11	--	--	720	--
MAR										
26...	0	31	28	150	4.7	11	--	--	310	--
APR										
02...	0	26	24	100	3.4	7.5	--	--	230	--
30...	0	39	40	180	4.8	8.8	--	--	420	--
JUN										
24...	0	23	51	320	8.5	11	--	--	550	--
JUL										
31...	0	17	51	340	9.3	11	--	--	560	--
AUG										
20...	0	21	48	300	8.3	9.9	--	--	520	--
SEP										
18...	0	22	50	310	8.4	8.2	--	--	560	--

06179200 POPLAR RIVER ABOVE WEST FORK, NEAR BREDETTE MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)
OCT										
18...	350	15	.5	4.8	--	1080	1.47	27.4	.02	--
24...	340	13	.4	6.1	1040	1060	1.41	28.1	.00	.01
NOV										
27...	380	16	.6	8.1	--	1190	1.62	51.4	.01	--
DEC										
11...	380	14	.5	7.8	--	1200	1.63	45.4	.01	--
JAN										
08...	440	18	.6	9.8	--	1410	1.92	26.3	.00	--
MAR										
26...	200	9.4	.3	8.5	--	625	.85	E42.2	.94	--
APR										
02...	140	5.7	.2	7.9	--	450	.61	E304	.42	--
30...	210	10	.4	7.0	--	749	1.02	48.5	.00	--
JUN										
24...	370	14	.5	5.9	--	1130	1.54	8.85	.01	--
JUL										
31...	400	17	.7	2.7	--	1180	1.60	4.46	.00	--
AUG										
20...	370	16	.5	2.7	--	1090	1.48	10.0	.00	--
SEP										
18...	390	16	.5	2.3	--	1130	1.54	7.02	.00	--

DATE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHOPH OSPHATE DISSOL. (MG/L AS P) (00671)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED (MG/L AS C) (00689)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT										
18...	.01	.61	.62	.02	--	.00	--	--	1700	< 10
24...	.00	1.1	1.1	.01	.00	--	15	.1	1600	< 10
NOV										
27...	.01	.66	.67	.02	--	.02	--	--	1600	10
DEC										
11...	.02	.46	.48	.02	--	.00	--	--	1600	--
JAN										
08...	.00	1.3	1.3	.00	--	.00	--	--	1800	50
MAR										
26...	.12	1.6	1.7	.08	--	.00	--	--	720	70
APR										
02...	.13	.87	1.0	.07	--	.03	--	--	580	80
30...	.32	.68	1.0	.05	--	.07	--	--	1000	30
JUN										
24...	.09	1.3	1.4	.04	--	.03	--	--	1700	20
JUL										
31...	.03	1.2	1.2	.04	--	.03	--	--	1900	10
AUG										
20...	.00	.72	.72	.03	--	.00	--	--	1700	20
SEP										
18...	.00	.86	.86	.02	--	.00	--	--	1700	< 10

06179200 POPLAR RIVER ABOVE WEST FORK, NEAR BREDETTE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)
DEC									
11...	1500	--	30	--	3	--	< 1	--	< 1
JAN									
08...	1430	--	--	--	--	--	--	--	--
MAR									
26...	1430	--	0	--	1	--	< 1	--	< 1
APR									
02...	1530	500	0	2	1	0	< 1	1	< 1
30...	1800	--	--	--	--	--	--	--	--
JUN									
24...	1600	--	0	--	4	--	< 1	--	< 1
JUL									
31...	1330	--	--	--	--	--	--	--	--
AUG									
20...	1830	--	--	--	--	--	--	--	--
SEP									
18...	1330	400	100	3	4	0	< 1	0	< 1

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
DEC									
11...	--	0	--	0	--	--	2	--	7
JAN									
08...	--	--	--	--	--	--	--	--	--
MAR									
26...	--	0	--	6	--	--	0	--	20
APR									
02...	0	0	6	4	820	2	0	50	20
30...	--	--	--	--	--	--	--	--	--
JUN									
24...	--	0	--	3	--	--	0	--	9
JUL									
31...	--	--	--	--	--	--	--	--	--
AUG									
20...	--	--	--	--	--	--	--	--	--
SEP									
18...	0	0	3	2	270	0	0	30	3

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
DEC									
11...	--	.9	--	0	--	0	.0	--	< 3
JAN									
08...	.6	.5	--	--	--	--	--	--	--
MAR									
26...	--	.7	--	5	--	0	1.0	--	5
APR									
02...	.2	.3	5	4	0	0	1.0	10	4
30...	1.1	--	--	--	--	--	--	--	--
JUN									
24...	--	--	--	4	--	0	4.0	--	5
JUL									
31...	.2	--	--	--	--	--	--	--	--
AUG									
20...	.1	--	--	--	--	--	--	--	--
SEP									
18...	1.6	.6	5	2	0	0	3.0	20	5

06179200 POPLAR RIVER ABOVE WEST FORK, NEAR BREDETTE, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
18...	1030	8.0	9.4	12	.30
NOV					
27...	1415	.0	16	55	2.4
DEC					
11...	1500	.5	14	66	2.5
JAN					
08...	1430	.0	6.9	33	.61
MAR					
26...	1430	.5	E25	14	.95
APR					
02...	1530	1.0	E250	25	17
30...	1800	17.5	24	38	2.5
JUN					
24...	1600	22.5	2.9	43	.34
JUL					
31...	1330	24.0	1.4	28	.11
AUG					
20...	1830	21.0	3.4	27	.25
SEP					
18...	1330	11.0	2.3	30	.19

06180400 WEST FORK POPLAR RIVER NEAR BREDETTE, MT

LOCATION.--Lat 48°33'01", long 105°25'42", in SW¼SW¼ sec.1, T.32 N., R.48 E., Roosevelt County, Hydrologic Unit 10060004, at bridge on State Highway 13, 5.9 mi (9.5 km) upstream from mouth, and 6.6 mi (10.6 km) northwest of Bredette.

DRAINAGE AREA.--1,010 mi^2 (2,616 km^2).

PERIOD OF RECORD.--Water years 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)
OCT											
18...	1200	4.9	0	1260	8.7	11.5	9.0	6.8	11.0	103	100
24...	1600	7.0	--	1250	8.8	14.0	10.5	--	--	--	100
NOV											
27...	1600	9.5	2	1220	8.6	-10.0	.0	2.0	12.0	89	140
DEC											
11...	1630	9.1	0	1260	8.7	-15.0	.5	1.9	12.1	90	140
MAR											
26...	1615	E5.0	3	930	8.2	3.0	.5	9.2	10.8	81	110
APR											
02...	1700	E20	3	740	8.4	6.0	.5	32	11.9	88	92
30...	1930	15	1	1270	8.9	25.0	17.0	9.7	9.5	105	290
JUN											
24...	1800	2.4	0	1370	9.0	26.5	23.0	65	8.1	101	84
JUL											
31...	1430	.61	0	1490	9.0	32.0	25.0	10	9.9	129	81
AUG											
20...	1930	2.5	2	1090	8.7	22.5	19.5	5.2	8.2	97	82
SEP											
18...	1530	E2.5	3	1390	8.6	10.5	11.0	9.0	10.0	98	79

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)
OCT											
18...	0	16	15	270	12	5.0	--	--	530	--	170
24...	0	18	14	270	12	4.2	560	29	510	1.6	180
NOV											
27...	0	26	18	250	9.2	4.6	--	--	530	--	160
DEC											
11...	0	26	18	240	8.9	4.7	--	--	530	--	150
MAR											
26...	0	20	14	180	7.6	4.2	--	--	380	--	120
APR											
02...	0	17	12	140	6.4	5.8	--	--	290	--	100
30...	0	40	45	170	4.4	12	--	--	420	--	210
JUN											
24...	0	12	13	310	15	5.7	--	--	560	--	170
JUL											
31...	0	11	13	340	16	6.1	--	--	590	--	200
AUG											
20...	0	13	12	290	14	4.5	--	--	540	--	180
SEP											
18...	0	12	12	290	14	4.2	--	--	550	--	180

06180400 WEST FORK POPLAR RIVER NEAR BREDETTE MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT										
18...	7.5	.5	7.7	--	811	1.10	10.7	.02	--	.01
24...	7.1	.4	9.4	785	809	1.07	14.8	.02	.01	.04
NOV										
27...	6.7	.4	9.9	--	795	1.08	20.4	.01	--	.02
DEC										
11...	4.9	.5	9.9	--	773	1.05	19.0	.02	--	.02
MAR										
26...	5.8	.3	8.5	--	582	.79	E7.86	.03	--	.02
APR										
02...	5.3	.3	10	--	465	.63	E25.1	.03	--	.04
30...	6.3	.3	3.4	--	741	1.01	30.0	.00	--	.08
JUN										
24...	8.7	.6	11	--	869	1.18	5.63	.02	--	.09
JUL										
31...	9.8	.7	8.8	--	945	1.29	1.56	.00	--	.01
AUG										
20...	8.1	.5	11	--	839	1.14	5.66	.00	--	.21
SEP										
18...	7.7	.6	6.7	--	839	1.14	E5.66	.00	--	.00

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHOPHOSPHATE DISSOL. (MG/L AS P) (00671)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT										
18...	--	.40	.41	.02	--	.00	--	--	650	60
24...	--	.77	.81	.01	.00	--	9.9	.0	600	50
NOV										
27...	--	.40	.42	.01	--	.01	--	--	530	10
DEC										
11...	--	.25	.27	.02	--	.01	--	--	520	--
MAR										
26...	--	.80	.82	.03	--	.01	--	--	690	50
APR										
02...	--	1.2	1.2	.14	--	.03	--	--	300	250
30...	--	1.2	1.3	.06	--	.01	--	--	1300	20
JUN										
24...	--	2.5	2.6	.05	--	.04	--	--	780	90
JUL										
31...	--	1.1	1.1	.05	--	.03	--	--	980	100
AUG										
20...	.05	.57	.78	.06	--	.00	--	--	780	350
SEP										
18...	--	1.0	1.0	.03	--	.03	--	--	710	< 10

DATE	TIME	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL) (01105)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)
DEC									
11...	1630	--	20	--	6	--	< 1	--	1
MAR									
26...	1615	--	0	--	1	--	< 1	--	< 1
APR									
30...	1930	0	0	5	4	0	< 1	0	< 1
JUN									
24...	1800	--	0	--	4	--	< 1	--	< 1
JUL									
31...	1430	--	--	--	--	--	--	--	--
AUG									
20...	1930	--	--	--	--	--	--	--	--
SEP									
18...	1530	500	200	3	3	0	< 1	0	< 1

06180400 WEST FORK POPLAR RIVER NEAR BREDETTE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
DEC 11...	--	0	--	0	--	--	3	--	20
MAR 26...	--	0	--	2	--	--	0	--	8
APR 30...	0	0	3	2	660	4	2	70	6
JUN 24...	--	0	--	6	--	--	0	--	8
JUL 31...	--	--	--	--	--	--	--	--	--
AUG 20...	--	--	--	--	--	--	--	--	--
SEP 18...	10	0	4	2	420	0	0	40	2

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
DEC 11...	--	.6	--	0	--	0	.0	--	< 3
MAR 26...	--	.5	--	3	--	0	1.0	--	5
APR 30...	.3	.4	7	1	0	0	.0	40	< 3
JUN 24...	--	--	--	5	--	0	4.0	--	5
JUL 31...	.3	--	--	--	--	--	--	--	--
AUG 20...	.1	--	--	--	--	--	--	--	--
SEP 18...	.5	.5	5	2	0	0	4.0	20	4

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT 18...	1200	9.0	4.9	29	.38
NOV 27...	1600	.0	9.5	40	1.0
DEC 11...	1630	.5	9.1	18	.44
MAR 26...	1615	.5	E5.0	9	.12
APR 02...	1700	.5	E20	49	2.6
30...	1930	17.0	15	24	.97
JUN 24...	1800	23.0	2.4	95	.62
JUL 31...	1430	25.0	.61	17	.03
AUG 20...	1930	19.5	2.5	63	.43
SEP 18...	1530	11.0	E2.5	15	.10

06181000 POPLAR RIVER NEAR POPLAR, MT

LOCATION.--Lat 48°10'15", long 105°10'42", in NE¼NE¼ sec.19, T.28 N., R.51 E., Roosevelt County, Hydrologic Unit 10060003, on right bank 4 mi (6 km) north of Poplar and 11 mi (18 km) upstream from mouth.

DRAINAGE AREA.--3,174 mi^2 (8,221 km^2).

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
OCT 16...	1500	16	0	2010	8.5	13.0	10.0	2.1	10.3	97	260	0
NOV 26...	1215	46	2	1780	8.8	-1.0	.5	3.2	13.0	98	260	0
DEC 11...	1130	24	0	1750	8.6	-5.0	.5	3.4	12.4	91	260	0
JAN 08...	1200	17	0	2000	8.4	-29.0	.0	1.7	10.4	75	320	0
MAR 28...	1400	96	1	1040	8.1	8.5	.5	20	12.0	88	150	0
APR 17...	1430	128	0	841	8.6	25.0	12.5	15	9.8	98	160	0
MAY 01...	1300	52	3	1270	8.7	26.5	17.5	14	8.3	92	200	0
JUN 24...	1230	10	0	1600	8.7	25.0	21.0	24	7.8	94	180	0
JUL 31...	1700	1.0	0	2300	9.0	32.5	26.0	13	8.9	117	260	0
AUG 21...	1230	12	1	1780	8.6	21.0	19.0	9.0	8.4	96	200	0
SEP 18...	1800	7.3	2	1980	8.6	12.5	13.5	7.1	10.2	105	230	0

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
OCT 16...	36	42	340	9.1	9.2	450	250	230	.4	6.6	1190
NOV 26...	38	40	320	8.6	9.1	530	270	93	.4	8.9	1100
DEC 11...	38	39	310	8.4	7.7	580	280	64	.5	8.9	1100
JAN 08...	51	47	370	9.0	8.2	610	320	100	.7	10	1270
MAR 28...	22	24	180	6.3	6.5	330	180	13	.3	6.7	632
APR 17...	26	22	130	4.5	7.1	290	130	19	.3	5.9	515
MAY 01...	32	30	230	7.0	7.4	420	190	47	.7	6.1	796
JUN 24...	19	32	300	9.8	8.6	490	270	71	.5	8.6	1010
JUL 31...	24	48	420	11	11	440	300	300	.6	4.5	1370
AUG 21...	21	35	350	11	8.1	430	250	160	.5	6.4	1110
SEP 18...	26	39	350	10	7.9	430	260	240	.5	4.7	1180

06181000 POPLAR RIVER NEAR POPLAR, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, ORTHOPH OSPHATE DISSOL. (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 16...	1.62	51.4	.02	--	.03	.49	.52	.01	.00	990	< 10
NOV 26...	1.50	137	.01	.03	.08	.89	.97	.00	.01	--	--
DEC 11...	1.50	71.3	.01	--	.02	.43	.45	.01	.01	1100	--
JAN 08...	1.73	58.3	.00	--	.00	.83	.83	.00	.00	950	20
MAR 28...	.86	164	.01	--	.04	2.1	2.1	.05	.00	680	40
APR 17...	.70	178	.03	--	.00	1.0	1.0	.06	.04	640	40
MAY 01...	1.08	112	.00	--	.07	1.0	1.1	.05	.01	760	10
JUN 24...	1.37	27.3	.01	--	.06	1.2	1.3	.05	.03	1200	20
JUL 31...	1.86	3.70	.00	--	.03	1.3	1.3	.05	.03	1200	20
AUG 21...	1.51	36.0	.00	--	.00	1.1	1.1	.04	.00	1100	20
SEP 18...	1.60	23.3	.00	--	.00	.96	.96	.02	.00	1000	< 10

DATE	TIME	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
DEC 11...	1130	--	30	--	2	--	< 1	--	< 1
JAN 08...	1200	--	--	--	--	--	--	--	--
MAR 28...	1400	--	100	--	4	--	< 1	--	< 1
APR 17...	1430	400	100	2	2	0	< 1	1	< 1
MAY 01...	1300	--	--	--	--	--	--	--	--
JUN 24...	1230	--	0	--	4	--	< 1	--	< 1
JUL 31...	1700	210	0	4	3	0	0	0	0
AUG 21...	1230	--	--	--	--	--	--	--	--
SEP 18...	1800	--	100	--	3	--	< 1	--	< 1

06181000 POPLAR RIVER NEAR POPLAR, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
DEC 11...	--	0	--	0	--	--	0	--	20
JAN 08...	--	--	--	--	--	--	--	--	--
MAR 28...	--	0	--	2	--	--	0	--	10
APR 17...	20	0	4	3	720	0	0	70	5
MAY 01...	--	--	--	--	--	--	--	--	--
JUN 24...	--	0	--	3	--	--	0	--	8
JUL 31...	0	0	5	3	390	4	2	60	0
AUG 21...	--	--	--	--	--	--	--	--	--
SEP 18...	--	0	--	2	--	--	2	--	10

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
DEC 11...	--	.9	--	0	--	0	.0	--	< 3
JAN 08...	.8	.8	--	--	--	--	--	--	--
MAR 28...	--	.4	--	2	--	0	.0	--	< 3
APR 17...	.4	.6	11	4	0	0	1.0	10	< 3
MAY 01...	.9	--	--	--	--	--	--	--	--
JUN 24...	--	--	--	5	--	0	4.0	--	4
JUL 31...	.1	.4	6	5	0	0	7.0	10	10
AUG 21...	.6	--	--	--	--	--	--	--	--
SEP 18...	--	.5	--	4	--	0	5.0	--	8

06181000 POPLAR RIVER NEAR POPLAR, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT					
16...	1500	10.0	16	11	.48
NOV					
26...	1215	.5	46	49	6.1
DEC					
11...	1130	.5	24	53	3.4
JAN					
08...	1200	.0	17	22	1.0
APR					
17...	1430	12.5	128	26	9.0
MAY					
01...	1300	17.5	52	59	8.3
JUN					
24...	1230	21.0	10	50	1.4
JUL					
31...	1700	26.0	1.0	34	.09
AUG					
21...	1230	19.0	12	48	1.6
SEP					
18...	1800	13.5	7.3	26	.51

06181995 BEAVER CREEK AT INTERNATIONAL BOUNDARY

(International gaging station)

LOCATION.--Lat 49°00'03", long 105°02'09", in SE¼ sec.5, T.1, R.23 W., second meridian, Hydrologic Unit 10060006, on left bank 300 ft (91 m) north of international boundary, 6 mi (10 km) east of Canadian Big Beaver Port of Entry, 8 mi (13 km) upstream from mouth, and 9 mi (14 km) southeast of Big Beaver, Saskatchewan.

DRAINAGE AREA.--180 mi^2 (470 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1977 to current year. April 1949 to October 1952, seasonal record collected 0.8 mi (1.3 km) downstream (station number 06182000 Beaver Creek near international boundary). Records probably are equivalent.

GAGE.--Water-stage recorder. Altitude of gage is 2,250 ft (686 m), from topographic map. April 1949 to October 1952, nonrecording gage 0.8 mi (1.3 km) downstream at different datum.

REMARKS.--Water-discharge records fair except those for winter period, which are poor.

COOPERATION.--This is one of a number of stations which are maintained jointly by Canada and the United States.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,020 ft^3/s (114 m^3/s) Apr. 7, 1952, gage height, 13.3 ft (4.05 m), from floodmark, from rating curve extended above 320 ft^3/s (9.06 m^3/s), on basis of slope-area measurements of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 54 ft^3/s (1.53 m^3/s) Mar. 20 (backwater from ice); maximum gage height, 5.67 ft (1.727 m) Mar. 20 (backwater from ice); minimum daily discharge, 0.60 ft^3/s (0.017 m^3/s) Mar. 9-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.4	1.6	1.8	1.7	.71	20	1.3	.99	.85	.85	1.1
2	1.3	1.4	1.6	1.8	1.7	.71	12	1.4	.99	.88	.92	1.2
3	1.3	1.4	1.6	1.8	1.6	.71	9.6	1.4	1.1	.92	1.1	1.1
4	1.3	1.3	1.6	1.8	1.6	.67	7.3	1.4	1.0	.92	1.1	1.3
5	1.3	1.3	1.6	1.8	1.5	.67	6.1	1.3	.92	.95	1.1	1.2
6	1.4	1.3	1.6	1.8	1.4	.64	5.4	1.4	.95	.92	.85	1.3
7	1.3	1.3	1.6	1.8	1.3	.64	4.7	1.4	.95	.88	.85	1.1
8	1.3	1.4	1.6	1.8	1.2	.64	4.3	1.4	.95	.88	1.0	1.2
9	1.2	1.4	1.6	1.8	1.2	.60	3.8	1.3	.88	.81	1.1	1.1
10	1.3	1.4	1.7	1.8	1.1	.60	3.4	1.3	.88	.78	1.1	1.1
11	1.3	1.4	1.7	1.8	1.1	.60	3.3	1.3	.81	.78	1.1	1.1
12	1.3	1.4	1.7	1.8	.99	.64	3.0	1.2	.85	.74	1.4	1.1
13	1.3	1.4	1.7	1.8	.95	.64	2.6	1.2	.99	.74	1.4	1.0
14	1.3	1.4	1.7	1.8	.92	.67	2.2	1.3	1.1	.85	1.2	1.2
15	1.4	1.4	1.7	1.8	.88	.71	2.1	1.3	1.0	.99	1.2	1.4
16	1.4	1.4	1.7	1.8	.88	.81	2.0	1.3	.92	.95	1.2	1.2
17	1.4	1.4	1.7	1.8	.88	1.0	1.9	1.4	.85	1.2	1.1	1.1
18	1.4	1.4	1.7	1.8	.85	1.4	1.7	1.3	.95	1.3	1.0	1.1
19	1.5	1.4	1.7	1.9	.85	3.5	1.6	1.2	.88	1.6	1.1	1.3
20	1.9	1.4	1.7	1.9	.81	54	1.6	1.1	.81	2.8	1.2	1.3
21	1.8	1.3	1.7	1.9	.81	46	1.5	1.0	.78	1.7	1.1	1.1
22	1.6	1.3	1.7	1.9	.81	43	1.5	.88	.85	1.3	1.1	1.1
23	1.6	1.3	1.7	1.9	.78	41	1.4	.92	.92	1.1	1.1	1.2
24	1.5	1.3	1.7	1.9	.78	26	1.3	.81	.85	1.0	1.2	1.1
25	1.5	1.3	1.7	1.9	.78	25	1.3	.81	.88	1.1	1.1	1.2
26	1.4	1.3	1.7	1.9	.78	19	1.3	.78	.88	.92	1.1	1.2
27	1.4	1.5	1.7	1.9	.74	14	1.3	.81	1.2	1.1	.88	1.3
28	1.4	1.6	1.7	1.9	.74	13	1.3	.95	1.3	1.1	.85	1.3
29	1.3	1.6	1.7	1.8	.74	19	1.3	1.0	1.2	.92	.99	1.2
30	1.4	1.6	1.8	1.8	---	35	1.3	1.1	1.1	.85	1.1	1.2
31	1.4	---	1.8	1.8	---	23	---	1.0	---	.85	.99	---
TOTAL	43.5	41.7	52.0	56.8	30.37	374.56	112.1	36.26	28.73	32.68	33.38	35.4
MEAN	1.40	1.39	1.68	1.83	1.05	12.1	3.74	1.17	.96	1.05	1.08	1.18
MAX	1.9	1.6	1.8	1.9	1.7	54	20	1.4	1.3	2.8	1.4	1.4
MIN	1.2	1.3	1.6	1.8	.74	.60	1.3	.78	.78	.74	.85	1.0
AC-FT	86	83	103	113	60	743	222	72	57	65	66	70

CAL YR 1979 TOTAL 5114.72 MEAN 14.0 MAX 629 MIN .88 AC-FT 10150
WTR YR 1980 TOTAL 877.48 MEAN 2.40 MAX 54 MIN .60 AC-FT 1740

06181995 BEAVER CREEK AT INTERNATIONAL BOUNDARY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)
DEC 12...	1130	1.7	2	1910	8.0	2.5	.5	2.0	10.0	76	300
MAR 07...	1025	.65	3	1660	7.6	-17.0	.5	4.2	8.5	64	250
JUL 30...	1100	.89	0	1670	8.4	23.0	17.0	1.0	10.0	111	180

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
DEC 12...	0	62	35	370	9.3	7.5	640	420	2.7	.2
MAR 07...	0	55	27	290	8.0	7.3	440	340	6.6	.2
JUL 30...	0	30	26	320	10	7.2	540	340	5.3	.4

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, ORTHOPH OSPHATE DISSOL. (MG/L AS P) (00671)
DEC 12...	14	1300	1.77	5.97	.08	.25	.35	.60	.02	.00
MAR 07...	15	1010	1.37	1.77	.10	.34	.52	.86	.01	.01
JUL 30...	4.8	1060	1.44	2.55	.04	.00	.72	.72	.01	.00

DATE	TIME	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
DEC 12...	1130	20	1	< 1	1600	< 1	0	0
MAR 07...	1025	0	2	< 1	1400	< 1	0	0
JUL 30...	1100	0	3	< 1	1500	< 1	0	6

DATE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
DEC 12...	20	0	70	.5	3	0	< 1.0	< 3
MAR 07...	110	0	160	.3	0	0	.0	< 3
JUL 30...	30	2	10	.5	3	0	2.0	< 3

06181995 BEAVER CREEK AT INTERNATIONAL BOUNDARY--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
DEC					
12...	1130	.5	1.7	34	.16
MAR					
07...	1025	.5	.65	30	.05
JUL					
30...	1100	17.0	.89	5	.01

06183450 BIG MUDDY CREEK NEAR ANTELOPE, MT

LOCATION.--Lat 48°40'22", long 104°30'42", in SW¼SW¼NW¼ (revised) sec.27, T.34 N., R.55 E., Sheridan County, Hydrologic Unit 10060006, on right bank, 3 mi (5 km) southwest of Antelope, and 7 mi (11 km) south of Plentywood, MT.

DRAINAGE AREA.--1,171 mi^2 (3,033 km^2).

WATER DISCHARGE RECORDS

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,000 ft (610 m), from topographic map.

REMARKS.--Water-discharge records fair except those for winter period and those for period of backwater from beaver dams (Oct. 1 to Nov. 27), which are poor. Several known diversions for irrigation above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,870 ft^3/s (81.3 m^3/s) Apr. 18, 1979, gage height, 17.06 ft (5.200 m); minimum daily, 0.07 ft^3/s (0.002 m^3/s) July 25, 28-30, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined; maximum gage height, 5.26 ft (1.603 m) Mar. 26; minimum daily discharge, 0.07 ft^3/s (0.002 m^3/s) July 25, 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.30	3.0	4.5	3.5	1.5	2.5	80	12	1.8	.24	.29	2.4
2	.30	3.5	5.0	3.0	2.0	3.0	100	13	1.7	.29	.29	2.4
3	.30	3.5	5.5	3.5	2.5	2.5	120	16	2.2	.32	.12	4.4
4	.30	4.0	6.0	3.5	2.5	2.0	90	18	2.8	.29	.20	4.9
5	.30	4.0	5.0	3.0	2.5	2.0	65	12	2.6	.29	.10	4.4
6	.30	4.5	5.5	2.5	2.0	2.0	50	10	1.7	.24	.10	3.3
7	.30	5.0	5.0	2.0	2.0	2.5	39	7.9	1.7	.29	.16	2.3
8	.80	5.0	5.0	1.5	2.0	3.0	32	7.9	1.1	.24	.29	1.2
9	.60	5.5	5.5	1.5	2.0	3.5	32	7.5	.94	.20	.38	1.7
10	.50	6.0	6.0	1.5	1.5	3.0	27	7.5	.78	.20	.50	1.6
11	.30	7.0	5.5	1.5	2.0	3.0	23	7.2	.70	.16	.56	1.3
12	.40	8.0	6.0	2.0	2.0	3.0	23	6.8	1.1	.16	2.4	.90
13	.40	7.5	5.5	2.5	1.5	3.0	28	6.5	1.0	.20	4.5	.72
14	.40	7.0	6.0	3.0	1.5	3.5	27	6.2	2.1	.16	2.4	.54
15	.40	7.0	5.0	2.5	1.5	3.5	29	6.5	4.0	.16	5.6	.27
16	.40	7.0	4.5	2.5	1.5	4.0	32	6.5	2.2	.12	5.9	.10
17	.60	6.5	4.5	2.5	2.0	4.0	28	6.8	1.5	.12	5.1	.18
18	.60	6.5	5.0	2.0	2.0	4.0	28	6.5	1.3	.12	4.7	.18
19	.60	6.5	5.5	2.0	1.5	3.5	27	5.1	1.1	.16	4.3	.27
20	.60	6.0	5.5	2.0	2.0	4.0	26	4.5	.94	.16	4.0	.90
21	.60	6.0	5.0	2.5	2.0	4.0	25	4.2	.62	.12	3.4	1.4
22	1.0	6.5	4.5	2.5	1.5	4.5	29	4.2	.62	.10	3.0	1.4
23	.80	6.0	4.0	3.0	1.5	5.0	29	4.0	.62	.10	3.0	1.9
24	.90	6.0	4.0	3.0	2.0	7.0	26	3.7	.56	.09	2.6	2.1
25	.80	6.0	4.5	2.5	2.5	9.0	23	3.2	.42	.07	2.2	1.6
26	1.0	6.0	5.0	2.0	3.0	20	22	3.0	.38	.09	2.0	1.3
27	1.0	6.0	4.5	2.0	3.5	30	21	3.0	.42	.09	1.7	1.3
28	1.0	6.0	4.5	1.5	2.5	40	20	2.6	.50	.07	1.4	1.2
29	1.5	5.5	4.0	1.5	2.0	60	16	2.4	.42	.07	2.4	.90
30	2.0	5.0	3.5	1.5	---	60	8.7	2.2	.29	.07	2.4	.81
31	2.5	---	3.0	1.5	---	70	---	2.8	---	.12	2.1	---
TOTAL	21.80	172.0	152.5	71.5	58.5	371.0	1125.7	209.7	38.11	5.11	68.09	47.87
MEAN	.70	5.73	4.92	2.31	2.02	12.0	37.5	6.76	1.27	.16	2.20	1.60
MAX	2.5	8.0	6.0	3.5	3.5	70	120	18	4.0	.32	5.9	4.9
MIN	.30	3.0	3.0	1.5	1.5	2.0	8.7	2.2	.29	.07	.10	.10
AC-FT	43	341	302	142	116	736	2230	416	76	10	135	95

CAL YR 1979 TOTAL 33680.31 MEAN 92.3 MAX 2740 MIN .10 AC-FT 66800
WTR YR 1980 TOTAL 2341.88 MEAN 6.40 MAX 120 MIN .07 AC-FT 4650

06183450 BIG MUDDY CREEK NEAR ANTELOPE, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1979 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
OCT 17...	1130	.62	0	3600	8.9	15.0	8.0	4.5	9.9	90	680	0
NOV 29...	1030	5.7	1	4600	8.3	-1.5	.5	9.5	12.2	89	840	0
DEC 12...	1430	5.7	2	4890	8.6	1.0	.5	6.4	11.1	84	800	0
JAN 09...	1030	1.4	3	4000	8.3	-24.0	.0	10	8.2	60	710	0
FEB 28...	0815	2.7	3	4250	7.9	-10.0	.0	6.9	.6	4	930	0
MAR 20...	1500	4.0	2	4050	7.8	2.0	.5	21	.4	3	930	0
APR 01...	1200	77	3	845	8.1	3.5	.5	36	10.7	79	190	0
30...	1100	12	1	1880	8.7	22.0	16.0	9.5	8.4	91	380	0
JUN 25...	1000	.38	1	2730	9.7	23.0	21.0	2.7	11.3	135	470	0
JUL 30...	1545	.07	0	3360	9.7	30.0	27.0	1.5	10.0	134	540	0
AUG 20...	1130	4.C	2	2950	9.2	22.0	20.5	5.5	6.9	82	470	0
SEP 17...	1130	.22	3	2930	9.0	11.5	11.5	5.0	7.3	72	460	0

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
OCT 17...	56	130	700	12	14	700	1400	27	.5	--	.9
NOV 29...	88	150	950	14	20	900	1500	--	.5	--	12
DEC 12...	58	160	1000	15	12	1010	1800	52	.5	.7	7.2
JAN 09...	85	120	800	13	13	1140	1300	38	.5	--	19
FEB 28...	140	140	800	11	15	1290	1200	--	.6	--	24
MAR 20...	140	140	720	10	14	1150	1200	--	.3	--	18
APR 01...	32	27	120	3.8	10	200	230	6.4	.1	--	7.5
30...	53	59	330	7.4	9.2	510	530	12	.4	--	4.5
JUN 25...	22	100	490	9.9	10	590	940	23	.4	--	2.0
JUL 30...	18	120	580	11	12	540	1300	24	.5	--	.5
AUG 20...	24	100	560	11	11	660	950	24	.4	--	.3
SEP 17...	30	93	530	11	12	580	930	34	.4	--	.6

06183450 BIG MUDDY CREEK NEAR ANTELOPE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, ORTHOPH OSPHATE DISSOL. (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 17...	2750	3.74	4.60	.02	.01	.99	1.0	.03	.00	1300	40
NOV 29...	3480	4.73	53.6	.19	3.0	3.9	6.9	2.8	1.6	2000	30
DEC 12...	3700	5.03	56.9	.30	.11	1.8	1.9	.09	.01	2400	80
JAN 09...	3060	4.16	11.6	.53	.23	2.2	2.4	.15	.02	2500	60
FEB 28...	3220	4.38	23.5	.04	4.8	.50	5.3	.73	.69	2200	300
MAR 20...	3060	4.16	33.0	.04	7.4	2.3	9.7	2.5	2.2	1900	1300
APR 01...	554	.75	115	.42	.13	1.4	1.5	.14	.03	460	170
30...	1310	1.78	42.4	.00	.00	1.0	1.0	.10	.01	1100	20
JUN 25...	1940	2.64	1.99	.01	.03	1.7	1.7	.29	.03	1500	60
JUL 30...	2380	3.24	.45	.04	.09	2.0	2.1	.10	.01	1800	20
AUG 20...	2070	2.82	22.4	.00	.00	3.6	3.6	.13	.00	1800	30
SEP 17...	2020	2.75	1.20	.00	.04	2.1	2.1	.09	.01	1400	40

DATE	TIME	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)
DEC 12...	1430	--	--	--	3	--	0	--	0
MAR 20...	1500	--	0	--	8	--	0	--	0
APR 01...	1200	1100	200	3	2	0	< 1	1	< 1
30...	1100	--	--	--	--	--	--	--	--
JUN 25...	1000	100	0	11	10	0	0	0	0
JUL 30...	1545	--	--	--	--	--	--	--	--
AUG 20...	1130	--	--	--	--	--	--	--	--
SEP 17...	1130	--	100	--	11	--	0	--	0

DATE	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
DEC 12...	--	0	--	0	--	--	0	--	10
MAR 20...	--	0	--	3	--	--	0	--	610
APR 01...	0	0	5	5	1800	2	0	110	70
30...	--	--	--	--	--	--	--	--	--
JUN 25...	0	0	5	6	50	0	0	10	10
JUL 30...	--	--	--	--	--	--	--	--	--
AUG 20...	--	--	--	--	--	--	--	--	--
SEP 17...	--	0	--	2	--	--	0	--	20

06183450 BIG MUDDY CREEK NEAR ANTELOPE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
DEC 12...	--	.3	--	7	--	0	--	--	0
MAR 20...	--	2.7	--	0	--	1	2.0	--	20
APR 01...	.2	.3	9	5	0	0	1.0	10	8
30...	.5	--	--	--	--	--	--	--	--
JUN 25...	.4	--	4	5	0	0	5.0	10	10
JUL 30...	.4	--	--	--	--	--	--	--	--
AUG 20...	.3	--	--	--	--	--	--	--	--
SEP 17...	--	.2	--	2	--	0	7.0	--	10

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT 17...	1130	8.0	.62	11	.02
NOV 29...	1030	.5	5.7	16	.25
DEC 12...	1430	.5	5.7	92	1.4
JAN 09...	1030	.0	1.4	59	.22
MAR 20...	1500	.5	4.0	56	.60
APR 01...	1200	.5	77	32	6.7
30...	1100	16.0	12	65	2.1
JUN 25...	1000	21.0	.38	22	.02
JUL 30...	1545	27.0	.07	8	.00
AUG 20...	1130	20.5	4.0	8	.09
SEP 17...	1130	11.5	.22	18	.01

06185500 MISSOURI RIVER NEAR CULBERTSON, MT

LOCATION.--Lat 48°07'24", long 104°28'30", in SE¼NW¼ sec.3, T.27 N., R.56 E., Richland County, Hydrologic Unit 10060005, on right bank at downstream side of bridge on State Highway 16, 3 mi (5 km) southeast of Culbertson, 9.6 mi (15.4 km) downstream from Big Muddy Creek, and at mile 1,620.76 (2,607.80 km).

DRAINAGE AREA.--91,557 mi^2 (237,133 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1941 to December 1951, April 1958 to current year.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,883.4 ft (574.06 m) National Geodetic Vertical Datum of 1929 (U.S. Army Corps of Engineers bench mark). July 1 to Nov. 6, 1941, water-stage recorder at site 400 ft (120 m) upstream at datum 0.11 ft (0.034 m) higher. Nov. 7, 1941, to Aug. 17, 1950, water-stage recorder at site 580 ft (177 m) downstream at present datum. Aug. 18, 1950, to Dec. 31, 1951, nonrecording gage on bridge at present datum. Apr. 1, 1958, to Nov. 1, 1967, water-stage recorder at site 580 ft (177 m) downstream at present datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Flow partly regulated by Fort Peck Lake (station number 06131500) and many other reservoirs above station. Diversions for irrigation of about 1,030,400 acres (4,170 km^2) above station.

AVERAGE DISCHARGE.--30 years (1943-51, 1958-80, after operational level at Fort Peck Lake was reached), 10,930 ft^3/s (309.5 m^3/s), 7,919,000 acre-ft/yr (9.76 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,200 ft^3/s (2,210 m^3/s) Mar. 26, 1943, gage height, 14.80 ft (4.511 m), from rating curve extended above 30,000 ft^3/s (850 m^3/s); maximum gage height observed, 19.66 ft (5.992 m) Apr. 14, 1979 (backwater from ice jam); minimum daily discharge, 575 ft^3/s (16.3 m^3/s) Nov. 22, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 14,700 ft^3/s (416 m^3/s) Feb. 7; maximum gage height observed, 12.23 ft (3.728 m) Dec. 21 (backwater from ice); minimum daily discharge, 6,180 ft^3/s (175 m^3/s) May 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9070	7870	7200	12000	13200	12200	8900	6360	7130	12500	13000	14000
2	9070	7650	7600	12000	13500	12100	9390	6180	7150	12900	13100	13800
3	9230	7790	8000	11800	13800	11600	8970	6400	7180	13300	13100	13800
4	9390	7700	8200	12100	14000	11800	8410	6460	7220	13400	13100	14100
5	9130	7770	7600	11800	14300	12200	8230	6570	7200	13200	13100	14200
6	9490	7790	7200	10800	14200	12200	8410	6460	7330	12600	13200	14000
7	9330	7790	7000	9800	14700	12000	8360	6460	7380	12300	13200	12900
8	9130	7880	7200	9600	14100	12100	8640	6960	7650	12400	13100	13000
9	9020	7880	7200	9300	14000	12300	8940	7200	8030	12800	13400	12500
10	8890	7910	7200	9500	14200	12200	8790	7180	8050	13700	13800	12400
11	8740	7960	7100	10000	13800	12100	8050	7130	8050	13500	13700	12900
12	8670	7910	8600	10400	13500	12200	8000	7200	8410	12600	13700	12600
13	8230	7740	10300	11100	13400	12100	7930	7330	8940	13400	13300	12200
14	8110	7580	12700	11800	13400	12300	7540	7150	8860	13700	13100	12600
15	7660	7700	12200	12400	13800	12400	8030	7260	8940	13600	13200	12600
16	7340	7790	11600	12800	14300	12400	8120	7290	8910	13200	13400	12300
17	7520	7750	12000	13000	14500	12500	7790	7090	8760	13200	13700	12200
18	7590	7930	12800	13100	13800	12700	7980	7020	8410	13300	14000	12200
19	7940	7870	12000	13000	13000	12800	7770	7040	8680	13100	13800	12200
20	7540	7610	11600	13000	12000	12700	7700	7090	8270	12800	13400	12200
21	7750	7540	11500	13000	12000	12200	7650	7040	8150	12800	13800	12200
22	7730	8040	11600	12900	12300	12000	7310	7260	8740	12700	13800	12100
23	7590	8140	11700	12800	12400	11800	7200	7380	8990	13400	13800	12100
24	7820	8300	11800	12800	12600	11200	7180	7350	9690	13000	13600	12000
25	8150	8150	12100	12800	12600	9700	7200	7220	10200	12600	13300	12300
26	7910	7930	12400	13100	12500	8700	6960	7240	11100	12900	13400	12200
27	7540	7630	12700	13200	12300	8700	6850	7090	12900	13000	13400	12100
28	7420	7740	12700	13000	12000	8200	6780	7090	12900	13000	13300	12100
29	7020	7790	12800	12400	12000	8600	6680	7130	13300	13000	13300	12300
30	7240	7600	12500	12600	---	8800	6570	7130	12900	12800	13500	12200
31	7930	---	12400	12800	---	8800	---	7130	---	13100	13900	---
TOTAL	255190	234730	319500	370700	386200	353600	236330	216890	269420	403800	416500	380300
MEAN	8232	7824	10310	11960	13320	11410	7878	6996	8981	13030	13440	12680
MAX	9490	8300	12800	13200	14700	12800	9390	7380	13300	13700	14000	14200
MIN	7020	7540	7000	9300	12000	8200	6570	6180	7130	12300	13000	12000
AC-FT	506200	465600	633700	735300	766000	701400	468800	430200	534400	800900	826100	754300

CAL YR 1979 TOTAL 5549930 MEAN 15210 MAX 52000 MIN 7000 AC-FT 11010000
WTR YR 1980 TOTAL 3843160 MEAN 10500 MAX 14700 MIN 6180 AC-FT 7623000

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946, 1965 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1965 to current year.

REMARKS.--Once-daily water temperatures are available in the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 941 micromhos Jan. 10, 1980; minimum daily, 338 micromhos Mar. 30, 1967.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 941 micromhos Jan. 10; minimum daily, 740 micromhos Sept. 27, 30.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
OCT 19...	1300	8000	1	830	8.2	16.0	9.5	23	10.0	96	K15
NOV 29...	1200	7790	0	892	8.1	-5.0	.0	18	13.1	94	K2
DEC 27...	1200	12700	0	804	8.0	5.0	.0	16	12.0	86	K10
JAN 23...	1400	12900	2	870	8.3	6.0	.0	7.0	14.2	104	< 1
FEB 27...	1300	12200	1	808	8.1	7.0	.0	12	12.5	92	K2
APR 04...	1500	8250	0	832	8.3	16.0	5.5	34	11.2	95	< 1
18...	1400	8000	1	878	8.1	25.0	13.0	30	9.9	101	K7
MAY 23...	1530	7380	0	820	8.6	33.0	20.0	33	8.4	100	K22
JUN 27...	1100	12700	2	813	8.5	17.0	16.0	75	8.5	92	150
JUL 30...	1600	12800	0	800	8.3	32.0	18.5	34	8.4	95	K39
SEP 03...	1230	13600	1	730	8.2	15.0	15.0	25	8.5	90	K32
25...	1300	12000	0	790	8.4	11.0	12.0	33	9.6	94	K20

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT 19...	K4	260	110	61	26	70	1.9	4.8	150	250
NOV 29...	< 1	280	110	65	28	80	2.1	4.5	170	280
DEC 27...	K5	250	88	58	25	70	1.9	4.1	160	240
JAN 23...	K7	270	110	63	27	76	2.0	4.6	160	250
FEB 27...	K1	260	95	61	25	72	2.0	4.2	160	260
APR 04...	400	260	100	60	27	76	2.0	4.3	160	260
18...	< 1	260	97	60	26	74	2.0	4.8	160	240
MAY 23...	K8	280	120	65	28	75	2.0	4.8	160	250
JUN 27...	130	260	100	60	27	71	1.9	4.6	160	240
JUL 30...	K23	250	84	59	26	66	1.8	4.0	170	220
SEP 03...	40	260	94	61	27	66	1.8	4.6	150	220
25...	K27	250	95	57	25	61	1.7	3.9	150	210

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT										
19...	8.8	.7	7.1	533	519	.72	11500	.16	.13	.00
NOV										
29...	9.6	.7	7.2	562	578	.76	11800	.05	.11	.01
DEC										
27...	9.6	.4	6.9	546	512	.74	18700	.10	.38	.00
JAN										
23...	8.9	.6	7.2	551	534	.75	19200	.14	.13	.03
FEB										
27...	11	.7	6.6	534	537	.73	17600	.10	.13	.04
APR										
04...	9.5	.6	6.1	549	540	.75	12200	.04	.04	.01
18...	9.1	.7	6.1	572	517	.78	12400	.00	.03	.00
MAY										
23...	11	.6	7.9	539	540	.73	10700	.02	.01	.01
JUN										
27...	8.4	.7	6.3	524	514	.71	18000	.08	.00	.11
JUL										
30...	8.7	.7	6.7	522	494	.71	18000	.12	.14	.00
SEP										
03...	11	.7	7.2	508	500	.69	18700	.04	.06	.02
25...	9.5	.7	6.8	525	464	.71	17000	.01	.00	.00

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N) (00607)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)
OCT										
19...	.00	.71	.56	.71	.56	.04	.01	3.5	--	--
NOV										
29...	.02	.41	--	.42	--	.05	.02	--	18	.0
DEC										
27...	.47	.47	--	.47	--	.03	.01	4.8	--	--
JAN										
23...	.03	.45	.40	.48	.43	.02	.01	5.2	--	--
FEB										
27...	.39	.28	--	.32	--	.02	.01	--	12	1.0
APR										
04...	.01	.89	.49	.90	.50	.08	.01	6.0	--	--
18...	.00	1.9	.54	1.9	.54	.09	.01	5.0	--	--
MAY										
23...	.02	.85	.62	.86	.64	.01	.02	--	4.8	.8
JUN										
27...	.00	.68	.46	.79	.46	.93	--	6.3	--	--
JUL										
30...	.00	1.6	1.6	1.6	1.6	.08	.02	10	--	--
SEP										
03...	.08	.48	--	.50	--	.06	.00	--	7.3	.2
25...	.03	.48	.37	.48	.40	.08	.03	4.8	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
NOV										
29...	1200	3	3	300	0	0	0	0	0	0
FEB										
27...	1300	4	4	300	40	1	<1	0	0	1
MAY										
23...	1530	4	1	100	70	0	0	0	0	1
SEP										
03...	1230	3	3	0	40	0	<1	0	0	0

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
NOV 29...	0	0	0	2600	20	7	1	40	10	.4
FEB 27...	< 3	14	1	660	10	3	8	10	6	.2
MAY 23...	0	10	6	2300	980	8	0	50	40	.2
SEP 03...	< 3	5	2	1200	< 10	3	0	10	4	.7

DATE	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV 29...	.0	6	1	1	0	1	0	70	30
FEB 27...	.1	5	1	1	1	0	0	20	< 3
MAY 23...	.1	7	3	1	1	0	0	30	9
SEP 03...	.4	2	4	1	1	0	0	20	5

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLOR-DANE, TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)
NOV 29...	1200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 27...	1300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALA-THION, TOTAL (UG/L) (39530)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	PARA-THION, TOTAL (UG/L) (39540)	TOX-APHENE, TOTAL (UG/L) (39400)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	SILVEX, TOTAL (UG/L) (39760)
NOV 29...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	807	851	880	825	865	823	790	808	816	763	782	750
2	806	839	871	839	810	840	830	813	839	760	780	755
3	802	830	850	853	830	845	831	811	840	764	780	760
4	802	820	831	865	823	881	831	801	837	763	780	757
5	801	826	821	840	828	832	840	800	833	767	779	758
6	806	831	813	848	829	860	840	809	821	770	780	757
7	817	834	815	842	828	861	830	820	822	770	781	760
8	810	832	848	832	811	871	840	812	825	770	780	759
9	806	828	842	934	812	846	839	800	821	768	771	751
10	807	820	841	941	838	870	902	795	820	766	779	760
11	807	819	850	892	822	869	882	794	825	768	781	758
12	813	811	861	870	820	811	880	795	821	788	783	748
13	818	818	878	902	805	840	870	796	811	780	788	759
14	820	826	870	905	863	839	836	803	817	780	785	757
15	821	823	863	869	868	829	819	808	826	778	780	759
16	820	821	851	862	861	821	829	802	819	774	780	758
17	820	816	854	851	868	821	839	795	820	770	771	758
18	819	810	860	846	841	821	842	794	820	770	779	750
19	821	803	855	851	841	819	839	799	820	769	785	750
20	823	811	850	845	830	810	830	802	818	768	790	749
21	829	820	810	840	830	817	831	809	820	769	790	750
22	820	831	813	839	840	815	830	810	830	768	782	743
23	822	819	821	838	841	820	831	802	821	768	780	746
24	828	816	830	832	830	812	831	802	820	767	774	742
25	820	821	831	870	833	817	825	804	819	770	778	748
26	820	825	827	872	830	808	823	809	815	770	780	744
27	811	833	821	865	815	841	826	811	811	769	780	740
28	818	841	819	940	833	850	826	815	810	769	780	749
29	821	862	822	890	838	846	819	814	820	770	780	750
30	821	880	821	902	---	810	811	810	798	769	779	740
31	830	---	819	849	---	801	---	800	---	770	771	---
MEAN	816	827	840	866	834	834	836	805	821	770	780	752

WTR YR 1980 MEAN 815 MAX 941 MIN 740

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
19...	1300	9.5	8000	109	2350	61
NOV						
29...	1200	.0	7790	129	2710	--
DEC						
27...	1200	.0	12700	36	1230	--
JAN						
23...	1400	.0	12900	51	1780	--
FEB						
27...	1300	.0	12200	54	1780	93
APR						
04...	1500	5.5	8250	467	10400	24
18...	1400	13.0	8000	303	6540	39
MAY						
23...	1530	20.0	7380	153	3050	64
JUN						
27...	1100	16.0	12700	443	15200	73
JUL						
30...	1600	18.5	12800	301	10400	48
SEP						
03...	1230	15.0	13600	192	7050	61
25...	1300	12.0	12000	146	4730	66

06185500 MISSOURI RIVER NEAR CULBERTSON, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	NOV 29,79		APR 4,80		JUN 27,80		JUL 30,80		SEP 3,80		SEP 25,80	
TIME	1200		1500		1100		1600		1230		1300	
TOTAL CELLS/ML	330		1500		810		610		590		950	
DIVERSITY: DIVISION	0.9		0.4		1.6		0.8		1.4		1.5	
.CLASS	1.4		0.4		1.6		0.8		1.4		1.5	
..ORDER	1.9		1.2		1.9		1.8		1.5		1.8	
...FAMILY	2.8		2.0		2.5		2.2		2.3		2.3	
....GENUS	3.1		2.3		2.5		2.5		2.3		3.2	
ORGANISM	CELLS /ML	PER CENT	CELLS /ML	PER CENT	CELLS /ML	PER CENT	CELLS /ML	PER CENT	CELLS /ML	PER CENT	CELLS /ML	PER CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	13	2	--	-	--	-	13	1
...OOCYSTACEAE												
....ANKISTRODESMUS	76#	23	28	2	13	2	26	4	13	2	52	5
....CHLORELLA	40	12	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	13	2	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-	64	7
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-	13	1
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	--	-	100#	17	210#	22
....SCENEDESMUS	--	-	--	-	52	6	52	9	--	-	52	5
....TETRASTRUM	--	-	--	-	--	-	--	-	--	-	52	5
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CARTERIA	--	-	--	-	--	-	13	2	--	-	--	-
....CHLAMYDOMONAS	5	2	47	3	13	2	13	2	--	-	13	1
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	50#	15	350#	23	65	8	170#	28	13	2	52	5
....MELOSIRA	--	-	--	-	--	-	39	6	--	-	--	-
....SKELETONEMA	--	-	75	5	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....RHOICOSPHENIA	5	2	--	-	26	3	--	-	--	-	--	-
...CYMBELLACEAE												
....CYMBELLA	15	5	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE												
....DIATOMA	45	14	150	10	13	2	13	2	--	-	--	-
...FRAGILARIACEAE												
....ASTERIONELLA	--	-	760#	49	--	-	--	-	--	-	--	-
....SYNEDRA	20	6	28	2	--	-	--	-	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	37	2	13	2	--	-	--	-	--	-
...NAVICULACEAE												
....NAVICULA	10	3	37	2	13	2	13	2	26	4	--	-
...NITZSCHIACEAE												
....NITZSCHIA	30	9	9	1	260#	32	250#	40	100#	17	100	11
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...OCHROMONADACEAE												
....DINOBRYON	35	11	--	-	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONADALES												
...CRYPTOCHRYSIDACEAE												
....CHROOMONAS	--	-	--	-	--	-	--	-	--	-	13	1
...CRYPTOMONADACEAE												
....CRYPTOMONAS	--	-	--	-	26	3	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCCCCACEAE												
....AGMENELLUM	--	-	--	-	--	-	--	-	--	-	210#	22
....ANACYSTIS	--	-	--	-	--	-	--	-	--	-	120	12
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	150#	26	--	-
...OSCILLATORIACEAE												
....LYNGBYA	--	-	--	-	310#	38	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-	--	-	180#	30	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....TRACHELOMONAS	--	-	19	1	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)												
.DINOPHYCEAE												
..PERIDINIALES												
...GLENODINIACEAE												
....GLENODINIUM	--	-	--	-	--	-	13	2	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06186000 YELLOWSTONE LAKE AT BRIDGE BAY, YELLOWSTONE NATIONAL PARK

LOCATION.--Lat 44°32'00", long 110°26'20", Yellowstone National Park, Hydrologic Unit 10070001, at marina at Bridge Bay, 3.7 mi (6.0 km) southwest of lake outlet.

DRAINAGE AREA.--1,006 mi^2 (2,606 km^2).

PERIOD OF RECORD.--October 1921 to current year (gage heights only). Prior to October 1966, published as Yellowstone Lake at Lake Hotel.

REVISED RECORDS.--WSP 1916: Drainage area.

GAGE.--Nonrecording gage usually read once daily except during winter months, when it is read occasionally. Datum of gage is 7,729.45 ft (2,355.936 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1966, nonrecording gages at Lake Hotel dock at same datum.

REMARKS.--No regulation.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 7.34 ft (2.237 m) June 28, 30, 1974; minimum observed, -0.1 ft (-0.03 m) Dec. 7, 8, 1931.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 4.78 ft (1.457 m) July 9; minimum observed, 0.76 ft (0.232 m) Dec. 20.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---		---	---			---		---	4.63	3.86	2.77
2	---		---	---			---		---	4.67	3.78	2.76
3	---		---	---			---		---	4.68	3.70	2.70
4	---		---	---			---		---	4.72	3.66	2.69
5	---		---	---			1.14		---	4.74	3.70	2.67
6	---		---	---			---		---	4.76	3.54	---
7	---		---	---			---		---	4.74	3.53	2.62
8	---		---	---			---		---	4.75	3.52	2.57
9	---		---	.86			---		---	4.78	3.46	2.57
10	1.62		---	---			---		---	4.63	3.38	2.52
11	---		---	---			---		---	4.67	3.28	---
12	---		---	---			---		---	4.68	3.30	2.59
13	---		---	---			---		---	4.61	3.25	2.56
14	---		---	---			---		4.02	4.56	3.18	---
15	---		---	---			---		4.10	4.51	3.21	---
16	---		---	---			---		4.10	4.54	3.18	---
17	---		---	---			---		4.16	4.38	3.15	---
18	---		---	---			---		4.24	4.38	3.16	---
19	---		---	---			---		4.27	4.31	3.07	---
20	---		.76	---			---		4.33	4.36	3.05	---
21	---		---	---			---		---	4.28	3.02	---
22	---		---	---			---		---	4.26	2.91	---
23	---		---	---			---		4.53	4.20	2.88	---
24	1.44		---	---			---		4.55	4.16	2.88	---
25	---		---	---			---		4.63	4.20	---	2.50
26	---		---	---			---		4.61	4.12	2.88	---
27	---		---	---			---		4.65	4.08	2.85	---
28	---		---	---			---		4.64	4.02	2.85	---
29	---		---	---			---		4.63	3.98	2.77	---
30	---		---	---			---		4.64	3.90	2.79	---
31	1.34		---	---			---		---	3.88	2.76	---
TOTAL	---		---	---			---		---	137.18	---	---

06186500 YELLOWSTONE RIVER AT YELLOWSTONE LAKE OUTLET, YELLOWSTONE NATIONAL PARK

LOCATION.--Lat 44°34'03", long 110°22'48", Yellowstone National Park, Hydrologic Unit 10070001, on left bank 450 ft (137 m) downstream from Fishing Bridge, 0.3 mi (0.5 km), revised, downstream from outlet of Yellowstone Lake, and at mile 616.4 (991.8 km), revised.

DRAINAGE AREA.--1,006 mi^2 (2,606 km^2).

PERIOD OF RECORD.--December 1922 to current year (prior to October 1926, gage heights only). Monthly discharge only for winter periods in water years 1927-30, 1932-33, 1935-38, 1940, 1942-46, published in WSP 1309; figures of daily discharge for these months published in WSP 646, 666, 686, 701, 731, 746, 786, 806, 826, 856, 896, 956, 976, 1006, 1036, and 1056, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1309: See PERIOD OF RECORD. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 7,727.91 ft (2,355.467 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 2, 1928, nonrecording gage at site 450 ft (137 m) upstream at datum 1.07 ft (0.326 m) higher.

REMARKS.--Records good except those for winter period, which are poor. No artificial regulation. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--54 years, (1927-80), 1,322 ft^3/s (37.44 m^3/s), 17.85 in/yr (453 mm/yr), 957,800 acre-ft/yr (1.18 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,170 ft^3/s (260 m^3/s) June 28, 1974, gage height, 820 ft (2.499 m); minimum daily, 130 ft^3/s (3.68 m^3/s) Mar. 1-31, 1934, but may have been less during periods of ice effect; minimum gage height, 1.45 ft (0.442 m) Dec. 17, 1936.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,820 ft^3/s (108 m^3/s) July 4, gage height, 5.80 ft (1.768 m); maximum gage height, 5.90 ft (1.798 m) July 5 (owing to seiche); minimum daily discharge, 250 ft^3/s (7.08 m^3/s) Jan. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	792	557	390	320	300	448	460	557	2080	3610	2580	1440
2	769	552	400	320	320	448	456	580	2120	3630	2520	1420
3	753	543	408	320	340	440	456	605	2160	3740	2460	1410
4	747	548	400	320	340	420	456	635	2180	3770	2400	1380
5	736	548	390	320	320	410	452	670	2190	3770	2370	1340
6	725	543	386	310	310	410	460	709	2230	3770	2290	1320
7	714	534	383	310	310	420	460	742	2240	3720	2240	1300
8	697	525	379	300	310	430	456	792	2240	3710	2190	1260
9	687	521	376	300	310	440	456	834	2250	3710	2150	1230
10	687	516	370	300	310	440	468	858	2290	3720	2090	1230
11	676	503	360	300	310	440	468	907	2370	3670	2050	1250
12	665	503	340	310	300	448	472	928	2470	3600	1970	1240
13	660	494	320	330	290	452	468	942	2550	3580	1940	1250
14	650	489	330	350	290	456	468	956	2680	3520	1910	1240
15	645	480	330	350	280	468	464	970	2770	3490	1900	1230
16	640	480	310	330	290	472	460	991	2840	3400	1890	1250
17	630	472	320	310	320	472	456	1020	2880	3350	1860	1240
18	630	476	330	300	350	468	452	1040	2940	3230	1820	1210
19	650	468	330	290	380	468	448	1090	3020	3260	1790	1220
20	645	456	330	290	380	468	448	1140	3130	3200	1760	1200
21	635	430	320	310	350	468	452	1190	3230	3140	1720	1190
22	630	430	320	320	350	464	460	1290	3320	3080	1690	1180
23	615	430	320	330	350	460	460	1440	3380	3010	1670	1150
24	610	430	310	330	360	456	468	1600	3440	2950	1630	1140
25	605	420	320	330	400	460	476	1780	3530	2940	1600	1110
26	600	410	320	300	450	460	480	1880	3560	2920	1590	1100
27	590	400	320	270	456	460	489	1890	3610	2870	1560	1100
28	585	380	310	260	452	460	503	1930	3610	2800	1530	1070
29	570	380	320	250	448	460	521	1960	3580	2760	1500	1060
30	570	390	320	260	---	460	539	2000	3600	2710	1460	1070
31	561	---	320	270	---	460	---	2040	---	2630	1420	---
TOTAL	20369	14308	10682	9510	9976	13986	14032	35966	84490	103260	59550	36830
MEAN	657	477	345	307	344	451	468	1160	2816	3331	1921	1228
MAX	792	557	408	350	456	472	539	2040	3610	3770	2580	1440
MIN	561	380	310	250	280	410	448	557	2080	2630	1420	1060
AC-FT	40400	28380	21190	18860	19790	27740	27830	71340	167600	204800	118100	73050

CAL YR 1979 TOTAL 398070 MEAN 1091 MAX 3710 MIN 280 AC-FT 789600
WTR YR 1980 TOTAL 412959 MEAN 1128 MAX 3770 MIN 250 AC-FT 819100

06191500 YELLOWSTONE RIVER AT CORWIN SPRINGS, MT

LOCATION.--Lat 45°06'43", long 110°47'37", in SE¼NW¼ sec.30, T.8 S., R.8 E., Park County, Hydrologic Unit 10070002, on left bank 20 ft (6 m) downstream from highway bridge at Corwin Springs, 1.3 mi (2.1 km) upstream from Mol Herron Creek, 7 mi (11 km) northwest of Gardiner, and at mile 549.7 (884.5 km), revised.

DRAINAGE AREA.--2,623 mi^2 (6,794 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1889 to November 1893 (published as "at Horr"), September 1910 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1912. WSP 1509: 1889-94, 1911, 1913, 1916-18, 1920-21, 1925, 1927. WSP 1559: Drainage area.

GAGE.--Water-stage and temperature recorders. Datum of gage is 5,079.09 ft (1,548.107 m) National Geodetic Vertical Datum of 1929. Aug. 12, 1889 to Nov. 4, 1893, nonrecording gages at site 2 mi (3 km) upstream at different datums. Sept. 2, 1910, to Apr. 19, 1935, nonrecording gages on bridge at present datum.

REMARKS.--Water-discharge records good except those for winter periods, which are fair. Natural storage in Yellowstone Lake. Diversions for irrigation of about 960 acres (3.89 km^2) of which 40 acres (162,000 m^2) lies below station.

AVERAGE DISCHARGE.--74 years, 3,112 ft^3/s (88.13 m^3/s), 16.11 in/yr (409 mm/yr), 2,255,000 acre-ft/yr (2.78 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 32,000 ft^3/s (906 m^3/s) June 14, 15, 1918, gage height, 11.5 ft (3.51 m), from rating curve extended above 18,000 ft^3/s (510 m^3/s); minimum observed, 389 ft^3/s (11.0 m^3/s) Feb. 23, Mar. 5, 9, 1937, gage height, 0.05 ft (0.015 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12,800 ft^3/s (362 m^3/s), May 24, gage height, 6.71 ft (2.045 m) only peak above base of 12,000 ft^3/s (340 m^3/s); minimum daily, 410 ft^3/s (11.6 m^3/s) Jan. 30 (result of freezeup).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1270	931	850	684	500	802	748	4920	7160	6780	3500	2190
2	1260	916	844	666	640	809	823	4980	7220	6700	3470	2190
3	1210	977	830	659	780	844	802	4880	6910	7190	3350	2180
4	1200	1030	837	666	760	809	830	5280	6630	7060	3230	2120
5	1200	1040	837	659	740	782	830	5700	6510	6550	3130	2010
6	1190	992	816	620	720	844	865	6380	6360	6260	3060	1950
7	1170	961	823	580	710	823	865	6700	6310	6050	2980	1910
8	1160	954	823	520	690	802	816	6700	6290	5980	2910	1930
9	1130	961	823	500	620	809	872	6750	6680	5930	2860	1920
10	1130	961	837	560	630	802	872	6550	7720	5700	2800	1880
11	1130	961	722	620	635	809	837	5390	8950	5520	2710	2130
12	1120	894	672	647	641	823	816	4650	10100	5300	2650	2740
13	1100	894	647	653	618	742	816	4200	10300	5170	2620	2410
14	1090	851	640	666	620	768	844	4020	9870	5060	2600	2480
15	1090	865	640	672	590	823	909	4020	9590	5060	2580	2240
16	1130	865	620	678	640	802	816	4340	8800	4880	2680	2370
17	1130	909	640	684	703	768	887	4880	8690	4790	2640	2320
18	1130	946	680	697	768	809	954	5430	9220	4830	2570	2160
19	1180	924	666	635	802	809	1060	5720	9970	4630	2600	2540
20	1250	782	684	600	823	809	1280	7090	10300	4530	2670	2430
21	1200	740	703	660	775	809	1600	9500	10700	4380	2550	2330
22	1150	760	716	660	775	816	1910	11200	9940	4260	2430	2340
23	1130	780	709	678	782	775	2140	12200	9470	4170	2350	2240
24	1130	870	684	684	768	823	2650	11800	8800	4090	2290	2220
25	1130	872	716	690	761	823	2920	10300	8280	4170	2230	2150
26	1150	816	697	680	761	775	3180	8510	8060	4150	2320	2090
27	1130	802	582	620	809	809	3210	7560	7810	3920	2360	2040
28	1100	720	540	450	809	802	3280	7300	7010	3790	2340	2000
29	1090	720	610	410	816	795	3670	7030	6800	3720	2230	1970
30	984	780	710	430	---	809	4060	7010	6650	3680	2120	1920
31	946	---	670	470	---	755	---	6730	---	3580	2100	---
TOTAL	35410	26474	22268	19098	20686	24879	46162	207720	247100	157880	82930	65400
MEAN	1142	882	718	616	713	803	1539	6701	8237	5093	2675	2180
MAX	1270	1040	850	697	823	844	4060	12200	10700	7190	3500	2740
MIN	946	720	540	410	500	742	748	4020	6290	3580	2100	1880
CFSM	.44	.34	.27	.24	.27	.31	.59	2.56	3.14	1.94	1.02	.83
IN.	.50	.38	.32	.27	.29	.35	.65	2.95	3.50	2.24	1.18	.93
AC-FT	70240	52510	44170	37880	41030	49350	91560	412000	490100	313200	164500	129700

CAL YR 1979 TOTAL 973662 MEAN 2668 MAX 15900 MIN 540 CFSM 1.02 IN 13.81 AC-FT 1931000
WTR YR 1980 TOTAL 956007 MEAN 2612 MAX 12200 MIN 410 CFSM 1.00 IN 13.56 AC-FT 1896000

06191500 YELLOWSTONE RIVER AT CORWIN SPRINGS, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965, 1969-74, 1977 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1977 to current year.

INSTRUMENTATION.--Temperature recorder since June 28, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 21.5°C July 22, 23, 1977; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 18.5°C July 24, 28, Aug. 1, 2, 13; minimum, 0.0°C on many days during November to March.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	13.0	10.5	12.0	2.5	1.0	1.5	.0	.0	.0	---	---	---
2	13.0	11.0	11.5	2.5	.5	1.5	.5	.0	.0	---	---	---
3	12.0	9.5	10.5	3.0	1.5	2.5	2.0	.5	1.0	---	---	---
4	11.0	8.5	10.0	3.5	2.5	3.0	3.0	2.0	2.5	---	---	---
5	11.5	9.0	10.5	4.0	2.5	3.0	3.0	2.0	2.5	---	---	---
6	13.0	9.5	11.0	4.0	2.0	3.0	3.0	2.5	2.5	---	---	---
7	12.5	10.0	11.5	3.5	2.0	2.5	3.5	2.5	3.0	---	---	---
8	12.0	9.5	11.0	3.5	2.0	2.5	4.5	3.0	3.5	---	---	---
9	11.5	8.5	9.5	3.0	1.5	2.5	4.5	3.0	3.5	---	---	---
10	10.5	8.0	9.5	3.5	2.0	2.5	4.0	1.5	3.0	---	---	---
11	12.0	8.5	10.0	3.5	2.0	2.5	1.5	.0	.5	---	---	---
12	12.0	9.5	10.5	3.0	1.0	2.0	.0	.0	.0	---	---	---
13	12.0	9.0	10.5	2.0	.0	1.0	.5	.0	.0	---	---	---
14	10.5	9.0	10.0	2.0	.5	1.0	.5	.0	.0	---	---	---
15	9.5	9.0	9.5	2.0	.0	1.0	1.5	.0	.5	---	---	---
16	10.5	8.5	9.5	1.5	.0	1.0	.5	.0	.0	---	---	---
17	10.0	8.0	9.0	3.5	1.0	2.0	2.0	.5	1.0	---	---	---
18	9.0	7.5	8.5	4.0	3.0	3.5	2.5	1.0	1.5	---	---	---
19	9.0	8.0	8.5	4.0	1.5	3.0	1.5	1.0	1.0	---	---	---
20	8.0	6.0	7.0	1.5	.0	.5	2.5	1.0	2.0	---	---	---
21	6.5	4.5	5.5	.5	.0	.0	3.5	2.0	3.0	---	---	---
22	6.0	4.5	5.5	.0	.0	.0	4.0	3.0	3.5	---	---	---
23	7.5	5.5	6.5	.5	.0	.0	3.0	1.5	2.5	---	---	---
24	8.0	7.0	7.5	.0	.0	.0	2.5	1.5	2.0	---	---	---
25	9.0	7.0	8.0	1.5	.0	.5	3.5	2.0	3.0	---	---	---
26	9.0	7.5	8.0	1.0	.0	.5	3.5	1.5	3.0	---	---	---
27	7.5	6.0	6.5	.5	.0	.0	1.5	.0	.5	---	---	---
28	6.0	5.0	5.5	.0	.0	.0	.0	.0	.0	---	---	---
29	6.0	4.0	5.0	.0	.0	.0	.0	.0	.0	---	---	---
30	4.5	2.5	3.5	.0	.0	.0	.0	.0	.0	---	---	---
31	3.5	1.0	2.0	---	---	---	.0	.0	.0	---	---	---
MONTH	13.0	1.0	8.5	4.0	.0	1.5	4.5	.0	1.5	---	---	---

06191500 YELLOWSTONE RIVER AT CORWIN SPRINGS, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	---	---	---	7.0	3.5	5.0	6.5	3.0	4.5	7.5	6.5	7.0
2	---	---	---	5.0	3.0	4.0	5.5	3.5	4.5	7.0	6.0	6.5
3	---	---	---	4.0	1.5	3.5	3.5	3.0	3.0	7.0	6.5	7.0
4	---	---	---	2.0	.0	1.0	7.5	3.5	5.5	8.0	7.0	7.5
5	---	---	---	1.0	.0	.5	8.0	4.5	6.0	8.0	7.0	7.5
6	---	---	---	3.5	.5	2.0	8.5	5.0	6.5	8.0	7.0	7.5
7	4.0	---	---	4.5	2.5	3.5	7.5	4.0	5.5	8.5	7.0	7.5
8	3.0	1.5	2.0	4.5	1.5	3.0	6.5	2.5	5.0	7.0	6.5	7.0
9	1.5	.0	1.0	4.0	2.5	3.0	5.5	4.0	5.0	7.0	6.5	7.0
10	1.5	.0	1.0	6.5	3.5	4.5	6.5	3.5	5.0	7.5	5.0	6.0
11	2.5	.5	1.5	7.5	4.5	5.5	8.0	5.0	6.0	5.0	4.5	4.5
12	2.5	1.0	2.0	5.5	3.5	4.5	8.5	4.5	6.0	6.5	5.0	6.0
13	2.0	.0	.5	4.5	2.0	3.5	9.5	4.0	7.0	7.5	6.0	6.5
14	.0	.0	.0	6.0	3.5	4.5	10.5	5.5	8.0	9.5	7.0	8.0
15	.0	.0	.0	4.0	2.5	3.5	9.5	7.0	8.0	8.5	7.5	8.0
16	.0	.0	.0	5.0	1.5	3.0	10.5	6.0	8.5	8.5	8.0	8.5
17	3.0	.0	1.5	3.5	.5	2.0	11.0	6.0	8.5	8.5	7.5	8.0
18	5.0	3.0	4.0	4.5	1.0	3.0	11.0	7.0	9.0	8.5	7.5	8.0
19	6.0	4.5	5.0	5.5	3.0	4.0	12.0	8.0	10.0	9.0	8.0	8.5
20	5.5	4.5	5.0	5.5	3.0	4.5	11.5	8.0	10.0	10.0	8.0	8.5
21	6.0	4.0	5.0	6.5	3.0	4.5	11.0	8.0	9.0	10.0	6.5	8.5
22	5.5	3.5	4.5	7.0	3.5	5.0	8.5	7.5	8.0	10.0	6.5	8.0
23	5.0	3.0	4.0	5.5	3.5	4.5	8.0	6.5	7.5	9.5	6.0	7.0
24	4.5	1.5	3.0	6.0	3.5	4.5	8.5	7.0	7.5	8.0	5.5	6.5
25	3.5	1.0	2.0	5.0	2.5	3.5	8.5	6.5	7.5	8.0	4.0	5.5
26	4.5	1.5	3.5	6.0	1.5	3.5	8.5	6.5	7.5	5.5	4.0	4.5
27	7.0	3.5	5.0	6.5	3.0	4.5	8.5	6.5	7.5	7.0	5.0	6.0
28	6.0	3.5	5.0	7.5	3.5	5.0	9.0	6.5	7.5	8.0	6.5	7.0
29	6.0	3.5	4.5	7.5	3.5	5.5	8.0	7.0	7.5	8.0	7.5	7.5
30	---	---	---	5.0	3.0	4.0	8.5	7.0	7.5	7.5	7.0	7.5
31	---	---	---	6.0	2.5	4.0	---	---	---	8.0	7.0	7.5
MONTH	7.0	.0	2.5	7.5	.0	4.0	12.0	2.5	7.0	10.0	4.0	7.0

		JUNE			JULY			AUGUST			SEPTEMBER	
1	9.0	7.0	8.0	13.0	11.0	11.5	18.5	17.0	18.0	14.0	11.5	13.0
2	9.0	8.0	8.5	14.0	13.0	13.5	18.5	16.5	17.5	13.5	12.0	13.0
3	8.5	7.5	8.0	14.0	12.0	13.0	17.5	15.5	17.0	15.0	12.5	13.5
4	8.5	7.5	8.0	13.0	12.0	12.5	16.0	14.0	15.0	15.5	12.0	13.5
5	9.0	8.5	8.5	14.0	13.0	13.5	16.5	13.0	15.0	15.5	12.0	14.0
6	8.5	7.0	7.5	14.5	13.5	14.0	17.5	15.0	16.0	16.5	13.0	15.0
7	8.5	7.0	8.0	15.0	14.0	14.5	17.5	15.0	16.0	16.5	14.5	15.5
8	11.0	9.0	10.0	15.0	13.5	14.5	18.0	15.5	16.5	16.0	14.5	15.0
9	11.5	10.5	11.0	16.0	14.5	15.0	17.5	15.5	16.5	17.0	14.0	15.5
10	12.0	10.0	11.0	16.5	15.0	16.0	18.0	15.5	16.5	16.5	15.0	15.5
11	11.5	9.5	10.5	16.0	14.5	15.5	18.0	15.5	16.5	16.0	14.5	15.5
12	11.0	9.0	10.0	16.0	15.0	15.5	18.0	15.5	16.5	15.0	13.5	14.0
13	10.5	8.0	9.0	16.0	15.0	15.5	18.5	16.5	17.0	14.0	13.5	13.5
14	10.5	8.0	9.0	15.0	14.0	14.0	17.5	16.0	16.5	15.0	13.0	14.0
15	8.5	7.5	8.0	15.0	13.5	14.5	16.0	15.0	16.0	15.0	12.0	13.5
16	10.5	7.5	8.5	16.0	14.5	15.0	16.5	14.5	15.5	14.0	12.0	13.0
17	11.5	9.5	10.5	16.0	14.5	15.5	17.0	14.5	15.5	14.5	12.0	13.0
18	11.5	9.5	10.5	15.0	13.5	14.5	15.5	14.0	15.0	14.0	12.0	13.0
19	12.0	10.5	11.0	16.0	15.0	15.5	14.0	13.0	13.5	13.0	11.5	12.5
20	12.0	10.0	11.0	16.0	14.5	15.5	14.0	12.0	13.0	12.0	11.0	11.5
21	12.0	10.5	11.5	17.0	15.0	16.0	15.0	12.5	13.5	11.5	10.0	10.5
22	12.5	10.5	11.5	18.0	16.5	17.0	15.5	13.5	14.5	10.5	9.0	10.0
23	12.5	10.5	11.5	17.5	17.0	17.5	16.5	14.0	15.0	12.0	9.5	10.5
24	11.5	10.0	10.5	18.5	16.5	17.5	17.0	14.0	15.5	11.5	10.0	10.5
25	13.0	11.0	11.5	18.0	16.5	17.5	16.0	14.0	15.0	11.5	9.0	10.0
26	13.0	12.0	12.5	17.5	16.0	17.0	17.5	14.5	15.5	12.0	9.0	10.0
27	13.0	10.0	11.5	18.0	16.5	17.5	16.5	14.0	15.0	12.5	10.0	11.0
28	11.5	9.5	10.5	18.5	16.5	17.5	14.5	13.0	14.0	13.0	10.5	11.5
29	12.0	11.5	11.5	17.5	16.5	17.0	15.0	12.5	14.0	13.0	10.0	11.5
30	12.0	11.5	11.5	17.5	15.5	16.5	13.5	12.5	13.0	13.0	10.0	11.5
31	---	---	---	18.0	16.0	17.0	13.5	12.0	12.5	---	---	---
MONTH	13.0	7.0	10.0	18.5	11.0	15.5	18.5	12.0	15.5	17.0	9.0	13.0
YEAR	18.5	.0	8.0									

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT

LOCATION.--Lat 45°35'50", long 110°33'55", in NE¼NW¼NW¼ sec. 12, T.3 S., R.9 E., Park County, Hydrologic Unit 10070002, on right bank 50 ft (15 m) downstream from bridge on former U.S. Highway 89, 2 mi (3 km) downstream from Suce Creek, 4 mi (6 km) south of Livingston, and at mile 501.4 (806.8 km), revised.

DRAINAGE AREA.--3,551 mi^2 (9,197 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1897 to December 1905, August 1928 to September 1932, October 1937 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1899. WSP 1509: 1902. WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,542.49 ft (1,384.551 m) National Geodetic Vertical Datum of 1929. May 2, 1897, to Dec. 31, 1905, nonrecording gage on highway bridge at different datum. Aug. 23, 1928, to Sept. 30, 1932, and Mar. 14, 1938, to Feb. 3, 1951, nonrecording gage on highway bridge at present datum.

REMARKS.--Water-discharge records good except those for winter period, which are fair. Diversions for irrigation of about 24,200 acres (97.9 km^2) of which about 2,000 acres (8.10 km^2) is below station.

AVERAGE DISCHARGE.--55 years, 3,762 ft^3/s (106.5 m^3/s), 2,726,000 acre-ft/yr (3.36 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 36,300 ft^3/s (1,030 m^3/s) June 17, 1974, gage height, 9.21 ft (2.807 m); maximum gage height, 9.34 ft (2.847 m) June 20, 1943; minimum daily discharge, 590 ft^3/s (16.7 m^3/s) Jan. 22, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,000 ft^3/s (425 m^3/s) May 24, gage height, 6.11 ft (1.862 m), only peak above base of 13,500 ft^3/s (382 m^3/s); minimum daily, 700 ft^3/s (19.8 m^3/s) Jan. 28, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1800	1560	1380	1230	1010	1360	1150	5470	7830	7670	3810	2580
2	1800	1550	1430	1210	1110	1340	1190	5870	8000	7440	3750	2630
3	1770	1560	1500	1170	1210	1360	1180	5680	7700	7730	3690	2610
4	1750	1630	1460	1160	1220	1340	1160	5840	7410	8100	3590	2630
5	1750	1660	1420	1170	1130	1440	1200	6200	7190	7440	3490	2480
6	1730	1650	1410	1150	1130	1330	1230	6880	6970	7070	3410	2400
7	1710	1610	1400	1100	1150	1320	1240	7410	6940	6760	3450	2370
8	1710	1590	1390	940	1130	1300	1200	7440	6850	6670	3230	2400
9	1700	1570	1390	880	1070	1260	1180	7470	7070	6610	3180	2420
10	1670	1570	1400	880	1090	1260	1220	7510	8060	6410	3120	2370
11	1670	1590	1300	1270	1100	1270	1220	6440	9520	6150	3050	2450
12	1660	1550	1200	1350	1120	1280	1200	5390	10800	5900	2980	3070
13	1650	1500	1200	1420	1150	1220	1190	4740	11600	5710	2940	3010
14	1630	1480	1200	1380	1010	1260	1200	4360	11200	5600	2920	3030
15	1650	1470	1200	1400	870	1280	1280	4250	10900	5490	2940	2910
16	1680	1470	1150	1260	910	1300	1310	4450	10300	5360	3010	2780
17	1670	1490	1200	1200	1180	1190	1280	4980	9850	5130	3010	2990
18	1670	1560	1260	1200	1300	1220	1350	5620	10300	5180	2910	2830
19	1750	1570	1220	1150	1490	1230	1460	6010	11000	5030	2960	2770
20	1850	1500	1210	1050	1540	1240	1670	7190	11900	4910	2990	3230
21	1880	1300	1220	1100	1500	1220	2060	9740	12100	4910	2980	2940
22	1810	1310	1250	1160	1480	1230	2470	12300	11700	4740	2830	2960
23	1790	1360	1250	1100	1410	1210	2700	13600	11100	4550	2770	2870
24	1770	1490	1220	1110	1370	1200	3120	14300	10200	4450	2700	2850
25	1750	1490	1220	1000	1360	1230	3550	12900	9630	4380	2630	2800
26	1760	1440	1230	810	1310	1200	3810	10600	9370	4450	2610	2710
27	1770	1370	1160	730	1340	1180	3880	9070	9070	4250	2780	2680
28	1760	1290	1000	700	1380	1210	3860	8370	8200	4090	2730	2630
29	1730	1150	1000	740	1360	1190	4160	7930	7700	4010	2710	2580
30	1670	1310	1100	933	---	1250	4570	7900	7470	3960	2600	2530
31	1590	---	1170	1080	---	1260	---	7600	---	3920	2550	---
TOTAL	53550	44640	39140	34033	35430	39180	59290	233510	277930	174070	94320	81510
MEAN	1727	1488	1263	1098	1222	1264	1976	7533	9264	5615	3043	2717
MAX	1880	1660	1500	1420	1540	1440	4570	14300	12100	8100	3810	3230
MIN	1590	1150	1000	700	870	1180	1150	4250	6850	3920	2550	2370
AC-FT	106200	88540	77630	67500	70280	77710	117600	463200	551300	345300	187100	161700

CAL YR 1979 TOTAL 1206687 MEAN 3306 MAX 18300 MIN 977 AC-FT 2393000
WTR YR 1980 TOTAL 1166603 MEAN 3187 MAX 14300 MIN 700 AC-FT 2314000

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965, 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1969 to current year.
WATER TEMPERATURES: October 1969 to current year.

INSTRUMENTATION.--Temperature recorder since July 25, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 398 micromhos Apr. 3, 1970; minimum daily, 73 micromhos June 14, 1979.
WATER TEMPERATURES: Maximum, 23.0°C July 9, 1976; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 369 micromhos Jan. 30; minimum daily, 91 micromhos May 22.
WATER TEMPERATURES: Maximum, 20.0°C July 22, 25, 28, Aug. 2; minimum, 0.0°C on many days during November to March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
NOV											
07...	1000	1610	0	285	7.9	3.5	4.0	1.1	11.8	105	K4
DEC											
13...	1140	1200	2	330	7.6	-.5	.0	1.7	12.1	97	K9
JAN											
11...	1130	1270	2	360	8.1	-6.0	.5	.60	11.4	94	K10
31...	0930	1080	1	349	8.1	-10.0	.0	1.0	9.2	73	K2
FEB											
28...	1000	1380	2	300	8.4	6.0	4.0	3.2	--	--	K3
APR											
04...	1130	1100	0	295	8.2	10.5	6.0	2.3	10.6	100	K9
30...	1100	4560	2	145	8.2	12.0	9.0	14	11.8	120	36
MAY											
28...	1600	8510	51	13[illegible]	7.3	13.0	10.0	8.2	9.6	100	--
JUN											
27...	0900	9000	2	115	8.7	9.0	11.5	5.4	9.2	98	23
JUL											
31...	1000	3920	0	175	8.2	15.0	15.5	1.2	7.0	81	36
AUG											
19...	1300	3080	2	212	8.7	12.5	13.5	1.6	9.3	105	20
SEP											
23...	0930	2880	1	198	7.7	11.0	10.0	4.9	9.1	95	K8

DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)
NOV										
07...	K1	88	5	23	7.4	20	.9	5.0	83	38
DEC										
13...	K8	110	5	28	8.6	24	1.0	5.1	100	41
JAN										
11...	K1	110	1	30	8.8	24	1.0	6.2	110	46
31...	K6	130	23	35	11	28	1.1	6.5	110	54
FEB										
28...	K18	84	0	22	7.0	22	1.0	5.4	86	40
APR										
04...	--	91	7	24	7.6	23	1.0	5.4	84	41
30...	K13	47	6	12	4.2	9.0	.6	2.5	41	16
MAY										
28...	--	42	0	11	3.6	7.3	.5	1.8	45	12
JUN										
27...	24	37	2	9.6	3.2	7.8	.6	2.2	35	14
JUL										
31...	31	56	0	14	5.0	13	.8	3.0	67	17
AUG										
19...	24	69	0	18	5.8	15	.8	3.3	78	23
SEP										
23...	K9	65	0	17	5.4	14	.8	3.4	74	23

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)
NOV 07...	15	.8	26	164	186	.22	713	1.3	.29	.06
DEC 13...	11	.7	29	199	209	.27	645	.34	.34	.03
JAN 11...	12	.9	32	233	228	.32	799	.45	.45	.06
31...	15	1.0	33	258	251	.35	752	.40	.40	.16
FEB 28...	12	.8	23	187	186	.25	697	.37	.33	.03
APR 04...	10	.8	25	186	188	.25	552	.19	.18	.03
30...	4.2	.5	17	103	91	.14	1270	.12	--	.06
MAY 28...	3.4	.3	18	90	85	.12	2070	.06	.06	.03
JUN 27...	2.0	.3	15	77	76	.10	1870	.34	.19	.04
JUL 31...	6.1	.5	18	120	117	.16	1270	.09	.12	.00
AUG 19...	7.5	.6	18	121	137	.16	1010	.06	.10	.00
SEP 23...	7.2	.6	20	146	132	.20	1140	.00	.03	.00

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N) (00607)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)
NOV 07...	.00	1.2	--	1.3	--	.01	.01	12	--	--
DEC 13...	.03	.46	--	.49	--	.03	.02	--	4.2	.2
JAN 11...	.12	1.1	.98	1.2	1.1	.03	.01	5.1	--	--
31...	.16	.09	.03	.25	.19	.01	.01	2.6	--	--
FEB 28...	.02	.04	.07	.07	.09	.06	.04	--	2.7	1.2
APR 04...	.18	1.8	.51	1.8	.69	.05	.02	4.9	--	--
30...	--	.55	--	.61	--	.11	.04	7.2	--	--
MAY 28...	.04	.43	.55	.46	.59	.03	.01	--	5.2	.4
JUN 27...	.04	.63	.36	.67	.40	.08	.01	2.6	--	--
JUL 31...	.00	.91	.94	.91	.94	.03	.03	4.9	--	--
AUG 19...	.00	.91	.37	.91	.37	.01	.02	--	3.7	.1
SEP 23...	.18	.45	.20	.45	.38	.05	.02	2.9	--	--

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
DEC 13...	1140	25	24	300	50	1	< 1	16	0	0
JAN 11...	1130	--	--	--	--	--	--	--	--	--
FEB 28...	1000	28	27	300	40	1	2	0	0	0
APR 04...	1130	--	--	--	--	--	--	--	--	--
MAY 28...	1600	12	9	0	30	0	< 1	0	0	1
AUG 19...	1300	24	19	100	40	9	< 1	10	20	0
SEP 23...	0930	--	--	--	--	--	--	--	--	--

DATE	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)
DEC 13...	< 3	3	0	140	30	5	0	0	5	.0
JAN 11...	--	--	--	--	--	--	--	--	--	--
FEB 28...	< 3	13	3	310	60	8	2	30	10	.0
APR 04...	--	--	--	--	--	--	--	--	--	--
MAY 28...	< 3	1	4	1200	80	8	0	40	4	.1
AUG 19...	< 3	7	2	290	20	2	3	30	3	.0
SEP 23...	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
DEC 13...	.0	1	2	0	0	0	0	20	20
JAN 11...	--	--	--	--	--	0	--	--	--
FEB 28...	.0	0	0	0	0	0	1	30	30
APR 04...	--	--	--	--	--	0	--	--	--
MAY 28...	.0	18	4	0	0	0	0	160	< 3
AUG 19...	.0	2	3	0	0	0	0	110	9
SEP 23...	--	--	--	--	--	0	--	--	--

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	261	286	328	336	355	307	286	149	128	130	182	219
2	264	282	310	322	363	293	300	136	134	131	187	211
3	267	280	299	328	329	296	299	141	134	127	190	211
4	266	276	294	327	320	308	300	134	154	126	190	210
5	268	273	297	328	320	300	301	134	140	128	198	212
6	269	272	300	334	322	296	302	130	137	137	205	221
7	270	276	301	341	330	289	290	119	141	139	192	221
8	271	281	302	348	328	290	293	115	140	141	198	220
9	273	280	301	367	325	290	328	116	135	140	199	220
10	273	278	298	349	327	293	293	120	128	140	200	223
11	274	280	300	345	330	296	303	141	115	158	210	220
12	275	281	315	331	331	294	293	145	116	150	202	220
13	276	284	329	320	332	291	297	150	97	151	209	194
14	278	288	328	317	336	296	298	166	102	151	207	201
15	278	286	330	320	340	299	291	160	108	154	205	203
16	274	286	329	320	337	295	288	159	113	157	210	211
17	274	283	329	321	333	292	290	150	115	156	209	202
18	273	284	317	324	330	295	286	151	120	158	209	205
19	272	284	312	327	327	309	280	134	104	159	208	209
20	269	285	321	336	286	288	268	123	100	161	211	192
21	266	291	317	342	288	291	240	101	106	165	209	199
22	268	320	321	342	291	290	217	91	108	170	212	201
23	271	317	317	329	307	286	200	100	107	170	210	200
24	272	310	320	330	309	287	227	100	114	170	215	203
25	270	315	320	336	298	288	183	100	120	169	220	202
26	272	292	328	341	298	289	178	117	118	168	220	209
27	271	293	320	359	295	288	169	123	121	172	212	208
28	272	304	320	351	298	289	166	127	130	172	218	211
29	273	319	341	361	295	290	168	140	135	176	219	212
30	275	331	356	369	---	290	151	131	132	177	221	212
31	278	---	353	365	---	290	---	133	---	176	222	---
MEAN	271	291	318	338	320	293	260	130	122	154	206	209

WTR YR 1980 MEAN 243 MAX 369 MIN 91

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	14.0	9.5	11.5	4.5	3.0	4.0	1.0	.0	.5	2.0	.5	1.5
2	12.5	10.0	11.5	3.5	1.5	2.5	1.5	.0	.5	2.5	1.5	2.0
3	12.0	9.0	10.5	4.5	2.5	3.5	3.0	1.0	2.0	2.0	1.0	1.5
4	12.5	9.0	10.5	4.0	3.0	3.5	3.0	1.5	2.5	2.0	1.0	1.5
5	12.5	9.5	11.0	4.0	3.0	3.5	3.0	2.0	2.5	2.5	.0	1.5
6	13.0	9.5	11.5	5.5	3.5	4.5	3.5	2.5	3.0	.0	.0	.0
7	13.0	10.5	12.0	5.0	3.0	4.0	3.5	2.5	3.0	.0	.0	.0
8	12.0	8.0	10.0	5.0	3.0	4.0	4.5	2.5	3.5	.0	.0	.0
9	10.0	7.5	8.5	4.0	3.0	3.5	4.5	3.0	4.0	.0	.0	.0
10	11.0	8.0	9.5	4.0	3.0	3.5	4.5	1.0	3.5	.0	.0	.0
11	12.0	9.0	10.5	4.5	3.0	3.5	1.0	.0	.5	.0	.0	.0
12	12.0	9.0	11.0	4.0	2.0	3.0	.0	.0	.0	.0	.0	.0
13	12.5	9.0	11.0	3.5	2.0	2.5	.0	.0	.0	.5	.0	.0
14	12.5	9.5	11.0	3.0	1.0	2.5	.5	.0	.0	1.5	.5	1.0
15	11.0	9.5	10.0	3.5	1.0	2.5	.5	.0	.0	1.5	1.0	1.5
16	11.5	8.5	10.0	3.5	1.5	2.5	.0	.0	.0	2.0	.5	1.0
17	11.0	9.0	10.0	4.0	3.0	3.5	1.0	.0	.5	2.5	1.0	1.5
18	9.5	8.0	8.5	4.5	3.5	4.0	2.0	.5	1.5	1.5	.0	.0
19	9.5	8.0	8.5	3.5	2.5	3.0	2.0	1.0	1.5	.0	.0	.0
20	8.0	6.5	7.0	3.0	1.5	2.5	3.0	2.0	2.5	.0	.0	.0
21	8.0	6.0	7.0	1.0	.0	.5	3.0	1.5	2.5	1.0	.0	.0
22	7.5	6.0	7.0	.0	.0	.0	3.5	2.5	3.0	.5	.0	.0
23	7.5	6.5	7.0	1.0	.0	.0	3.5	2.0	3.0	1.0	.0	.0
24	9.0	7.0	8.0	1.0	.5	.5	2.5	1.0	1.5	1.0	.0	.5
25	9.5	7.5	8.5	1.5	.5	1.0	2.5	1.5	2.0	.5	.0	.0
26	9.0	8.0	8.5	.5	.0	.5	3.0	2.0	2.5	.0	.0	.0
27	8.5	6.5	7.5	1.0	.5	.5	2.5	1.0	1.5	.0	.0	.0
28	7.5	6.5	7.0	.5	.0	.0	1.5	.0	.0	.0	.0	.0
29	7.0	6.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	6.5	4.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	5.5	3.0	4.5	---	---	---	1.0	.0	.0	.5	.0	.0
MONTH	14.0	3.0	9.0	5.5	.0	2.5	4.5	.0	1.5	2.5	.0	.5

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	1.0	.5	.5	6.0	3.0	4.5	8.0	4.0	5.5	11.5	8.0	9.5
2	2.0	.5	1.0	6.0	4.0	5.0	7.0	4.5	5.5	10.5	7.0	9.0
3	2.0	1.0	1.5	5.5	1.0	4.0	8.5	4.0	6.0	10.0	7.0	9.0
4	2.5	1.0	1.5	1.0	.0	.0	9.0	4.0	6.5	11.5	7.0	9.5
5	2.5	.5	1.5	.0	.0	.0	9.5	6.0	7.5	12.5	8.5	10.5
6	2.0	1.5	1.5	1.5	.0	.5	8.0	6.0	7.0	12.0	8.0	10.0
7	2.5	.5	1.5	4.0	1.0	2.5	8.5	5.5	7.0	11.0	7.5	9.0
8	2.5	.0	1.0	4.5	2.5	3.5	9.0	5.0	7.0	10.5	7.5	9.0
9	2.0	.0	1.0	4.0	2.5	3.5	7.5	5.5	6.5	10.5	7.5	9.0
10	2.0	.0	1.0	7.5	3.5	5.0	8.0	5.0	6.5	9.5	7.0	7.5
11	3.0	.5	1.5	7.0	4.5	5.5	8.5	5.0	7.0	8.5	5.5	6.5
12	2.0	.5	1.5	5.5	3.0	4.5	10.5	6.0	8.0	9.5	5.0	7.0
13	.5	.0	.0	5.0	2.5	3.5	11.5	6.5	9.0	10.0	6.5	8.5
14	.0	.0	.0	6.0	3.0	4.5	12.5	7.5	10.0	11.5	7.5	9.5
15	.0	.0	.0	6.5	3.0	4.5	11.5	8.0	9.5	12.5	8.5	10.5
16	1.0	.0	.5	5.5	2.0	3.5	12.0	6.5	9.5	11.5	9.5	10.5
17	2.0	.5	1.0	5.0	1.5	3.0	13.0	8.0	10.5	12.0	9.0	10.0
18	2.5	1.5	1.5	4.5	2.5	3.5	12.5	9.0	11.0	12.0	8.5	10.0
19	3.0	1.0	1.5	5.5	3.5	4.5	13.5	8.5	11.0	12.5	9.0	10.5
20	2.0	1.0	1.5	7.0	3.0	5.0	14.5	10.0	12.5	13.0	9.0	11.0
21	3.5	1.0	1.5	7.0	5.0	6.0	12.5	11.0	12.0	13.0	8.5	11.0
22	3.5	1.0	2.0	8.0	4.0	6.0	12.5	10.0	11.0	12.0	8.0	10.0
23	5.0	2.5	3.5	7.0	5.0	6.0	12.5	8.5	10.5	10.0	7.5	9.0
24	5.0	2.0	3.5	6.5	4.5	5.5	12.0	8.5	10.5	9.0	7.0	8.0
25	4.0	2.0	3.0	5.5	2.5	4.0	11.5	8.5	10.0	8.0	6.0	7.0
26	5.5	2.5	4.0	6.5	2.0	4.5	11.0	8.0	10.0	8.0	4.5	6.0
27	6.5	4.0	6.0	7.0	3.5	5.0	11.5	8.5	10.0	9.0	5.5	7.0
28	6.0	4.5	5.0	8.5	4.5	6.5	11.5	8.5	10.0	10.0	6.5	8.5
29	4.5	2.5	3.5	9.5	5.5	7.5	11.5	9.0	10.5	10.0	7.5	9.0
30	---	---	---	8.0	3.0	4.5	10.5	8.5	9.5	10.0	7.5	9.0
31	---	---	---	6.0	2.0	3.5	---	---	---	10.5	8.0	9.0
MONTH	6.5	.0	2.0	9.5	.0	4.0	14.5	4.0	9.0	13.0	4.5	9.0

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
1	11.5	8.0	9.5	14.5	11.5	13.0	19.0	16.5	18.0	15.0	11.5	13.0
2	11.5	8.0	10.0	16.0	12.5	14.5	20.0	16.5	18.0	13.5	12.0	12.5
3	10.5	8.0	9.5	15.5	13.0	14.5	18.5	15.5	16.5	15.5	11.5	13.0
4	10.5	8.0	9.0	15.0	12.0	13.5	18.0	14.0	16.0	15.5	11.5	13.5
5	11.5	8.0	10.0	16.0	12.5	14.5	17.5	14.0	16.0	16.0	12.0	14.0
6	10.5	9.0	9.5	17.5	13.5	15.5	17.0	14.0	15.5	16.5	12.5	14.5
7	10.5	7.5	9.0	17.0	14.0	16.0	18.5	14.5	16.5	15.5	14.0	15.0
8	13.5	8.5	11.0	16.0	14.0	15.0	18.0	14.5	16.5	15.0	13.5	14.0
9	15.0	10.5	13.0	18.0	14.0	16.0	19.0	15.5	17.5	16.0	12.5	14.0
10	15.0	11.0	13.0	18.5	15.0	17.0	19.0	15.0	17.0	16.0	13.5	14.5
11	13.5	10.5	12.0	18.5	15.0	16.5	18.5	15.0	17.0	15.0	14.0	14.0
12	14.0	10.0	11.5	17.5	14.5	16.0	19.0	15.0	17.0	16.5	13.5	15.0
13	13.0	9.0	11.0	17.5	15.0	16.5	18.0	15.5	16.5	15.0	13.0	13.5
14	11.5	9.0	10.0	16.5	14.0	15.5	17.5	15.0	16.5	15.5	13.0	14.0
15	9.5	8.5	9.0	17.0	13.5	15.0	16.5	15.0	15.5	14.0	11.5	13.0
16	12.0	8.0	10.0	18.5	14.0	16.5	18.0	14.0	15.5	13.5	11.0	12.5
17	14.5	10.0	12.0	18.0	15.5	16.5	17.5	14.5	16.0	14.5	11.5	13.0
18	14.5	10.5	12.5	17.5	14.0	16.0	16.5	13.5	14.5	14.0	11.5	12.5
19	15.0	10.5	13.0	17.0	14.5	16.0	15.0	12.5	13.5	13.0	12.0	12.5
20	14.0	11.0	12.5	18.0	14.5	16.0	15.0	12.5	14.0	12.5	11.0	11.5
21	14.5	11.0	13.0	19.0	15.0	17.0	16.5	12.5	14.5	11.5	10.0	10.5
22	15.0	11.0	13.0	20.0	16.0	18.0	15.0	13.0	14.0	11.5	9.5	10.5
23	14.0	11.5	12.5	18.5	16.5	17.5	15.0	13.5	14.5	11.5	10.0	10.5
24	14.5	11.0	12.5	19.5	16.0	18.0	17.0	13.0	15.0	---	---	---
25	15.5	10.5	13.0	20.0	16.5	18.5	16.0	13.0	14.5	---	---	---
26	16.5	11.5	14.0	19.5	16.5	18.0	17.0	13.0	15.0	---	---	---
27	14.5	11.5	13.0	19.5	16.0	18.0	15.5	13.0	14.5	---	---	---
28	14.5	10.0	12.0	20.0	16.5	18.0	14.5	13.0	14.0	---	---	---
29	15.5	10.5	13.0	19.0	17.0	18.0	16.0	12.0	14.0	---	---	---
30	14.0	12.0	12.5	19.0	15.5	17.0	14.0	12.0	13.0	---	---	---
31	---	---	---	19.5	15.5	17.5	13.5	11.5	12.5	---	---	---
MONTH	16.5	7.5	11.5	20.0	11.5	16.5	20.0	11.5	15.5	16.5	9.5	13.0
YEAR	20.0	.0	7.5									

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER- ATURE, WATER (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV						
07...	1000	4.0	1610	4	17	83
DEC						
13...	1140	.0	1200	6	19	--
JAN						
31...	0930	.0	1080	10	29	--
FEB						
28...	1000	4.0	1380	17	63	88
APR						
04...	1130	6.0	1100	8	24	87
30...	1100	9.0	4560	62	763	73
MAY						
28...	1600	10.0	8510	43	988	60
JUN						
27...	0900	11.5	9000	33	802	55
JUL						
31...	1000	15.5	3920	13	138	87
AUG						
19...	1300	13.5	3080	9	75	96
SEP						
23...	0930	10.0	2880	15	117	94

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) (00095)	PH FIELD (UNITS) (00400)	TEMPER- ATURE, AIR (DEG C) (00020)	TEMPER- ATURE, WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	WEATHER (WMO CODE NUMBER) (00041)
AUG									
19...	1300	212	8.7	12.5	13.5	9.3	105	645	3
19...	1400	206	8.7	18.0	14.0	9.4	107	645	3
19...	1500	198	8.8	19.0	14.5	9.5	110	645	61
19...	1600	197	8.8	17.5	15.0	9.4	110	645	2
19...	1700	203	8.9	17.5	15.0	9.5	111	646	0
19...	1800	202	8.7	17.5	15.0	9.4	110	646	0
19...	1900	200	8.9	15.5	15.0	9.2	107	645	2
19...	2000	203	8.8	14.0	15.0	8.8	103	645	1
19...	2100	204	8.7	12.5	14.5	8.5	98	646	2
19...	2200	208	8.8	12.0	14.5	8.4	97	647	3
19...	2300	210	8.8	11.5	14.5	8.1	93	647	58
19...	2400	208	8.9	11.0	14.5	8.0	92	647	2
20...	0100	--	--	--	14.5	7.9	91	--	--
20...	0200	--	--	--	14.5	7.9	91	--	--
20...	0300	206	8.6	10.0	14.0	7.9	90	647	2
20...	0400	--	--	--	14.0	7.8	89	--	--
20...	0500	--	--	--	14.0	7.9	90	--	--
20...	0600	198	8.5	8.0	13.5	7.9	89	648	2
20...	0700	200	8.4	9.0	13.5	7.9	89	648	3
20...	0800	205	8.7	9.5	13.0	8.1	90	648	3
20...	0900	203	8.4	10.0	13.0	8.2	91	648	3
20...	1000	200	8.3	11.5	13.0	8.3	92	648	3
20...	1100	200	8.3	14.0	13.0	8.8	98	648	3
20...	1200	202	8.5	18.5	13.0	9.2	102	648	1
20...	1300	203	8.7	17.5	13.0	9.3	103	648	0

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO JUNE 1980

DATE	DEC 13,79		APR 4,80		MAY 28,80		JUN 27,80	
TIME	1140		1130		1600		0900	
TOTAL CELLS/ML	1200		1500		100		64	
DIVERSITY: DIVISION	0.9		0.0		0.0		0.0	
.CLASS	0.9		0.5		0.0		0.0	
..ORDER	1.0		0.6		0.8		1.0	
...FAMILY	3.0		1.8		1.1		1.5	
....GENUS	3.4		1.8		1.1		1.5	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...OOCYSTACEAE								
....CHLORELLA	8	1	--	-	--	-	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	17	1	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	8	1	14	1	77#	75	26#	40
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	110	9	210	14	--	-	--	-
....COCCONEIS	34	3	--	-	--	-	13#	20
...CYMBELLACEAE								
....CYMBELLA	210#	17	940#	62	--	-	--	-
...DIATOMACEAE								
....DIATOMA	110	9	55	4	--	-	--	-
...FRAGILARIACEAE								
....FRAGILARIA	67	6	--	-	--	-	--	-
....SYNEDRA	110	9	14	1	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	76	6	28	2	--	-	--	-
...NAVICULACEAE								
....NAVICULA	120	10	--	-	13	13	--	-
...NITZSCHIACEAE								
....NITZSCHIA	59	5	97	6	13	13	26#	40
CHRYSOPHYTA								
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....OCHROMONAS	--	-	170	11	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	220#	18	--	-	--	-	--	-
....SCHIZOTHRIX	76	6	--	-	--	-	--	-

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT--Continued

PHYTOPLANKTON ANALYSES, JULY 1980 TO SEPTEMBER 1980

DATE	JUL 31,80	AUG 19,80	SEP 23,80
TIME	1000	1310	0930
TOTAL CELLS/ML	260	65	360
DIVERSITY: DIVISION	0.9	0.7	1.3
.CLASS	0.9	0.7	1.3
..ORDER	1.3	0.7	1.7
...FAMILY	2.0	1.4	2.3
....GENUS	2.0	1.4	2.6

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....DICTYOSPHAERIUM	--	-	--	-	39	11
....OOCYSTIS	--	-	--	-	130#	36
...SCENEDESMACEAE						
....SCENEDESMUS	26	10	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	13	5	13#	20	--	-
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	39	11
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	13	5	--	-	--	-
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	26	10	--	-	13	4
...DIATOMACEAE						
....DIATOMA	--	-	--	-	13	4
...FRAGILARIACEAE						
....FRAGILARIA	150#	60	--	-	--	-
...NAVICULACEAE						
....NAVICULA	--	-	13#	20	65#	18
...NITZSCHIACEAE						
....NITZSCHIA	13	5	39#	60	39	11
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	13	5	--	-	26	7

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06195600 SHIELDS RIVER NEAR LIVINGSTON, MT

LOCATION (REVISED).--Lat 45°44'18", long 110°28'45", in NE¼SE¼NW¼ sec.22, T.1 S., R.10 E., Park County, Hydrologic Unit 10070003, on right bank 900 ft (274 m) northeast of U.S. Highway 89, 0.2 mi (0.3 km) downstream from private road bridge, 2.0 mi (3.2 km) upstream from mouth, and 6.5 mi (10.5 km) northeast of Livingston.

DRAINAGE AREA.--852 mi^2 (2,207 km^2).

PERIOD OF RECORD.--October 1978 to current year.

GAGE (REVISED).--Water-stage recorder. Altitude of gage is 4,420 ft (1,347 m), from topographic map. Oct. 1, 1978, to Aug. 12, 1980, water-stage recorder at site 0.2 mi (0.3 km) upstream at datum 7.89 ft (2.405 m) higher.

REMARKS.--Records poor Oct. 1 to Aug. 13, good Aug. 14 to Sept. 30. Diversions for irrigation of about 32,000 acres (130 km^2) above station. Several observations of water temperature were made during the year and are available in files of the Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,600 ft^3/s (159 m^3/s) June 20, 1979, gage height, 6.80 ft (2.073 m), previous datum; minimum daily, 45 ft^3/s (1.27 m^3/s) Jan. 28, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,250 ft^3/s (63.7 m^3/s) June 16, gage height, 3.55 ft (1.082 m); minimum daily, 45 ft^3/s (1.27 m^3/s) Jan. 28.

REVISIONS.--The following location information supersedes the land-line description published in WDR-MT-79-1. LOCATION.--Lat 45°44'24", long 110°28'54", in SW¼NE¼NW¼ sec.22, T.1 S., R.10 E., Park County, Hydrologic Unit 10070003, on right bank 30 ft (9.1 m) downstream from private bridge, 2.2 mi (3.5 km) upstream from mouth, and 6.5 mi (10.5 km) northeast of Livingston. Altitude of gage was 4,430 ft (1,350 m), from topographic map. Gage was moved to its present location Aug. 13, 1980.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	95	155	130	99	100	136	141	1200	1560	649	118	141
2	97	147	140	95	120	130	141	1170	1510	617	120	141
3	97	152	150	91	140	120	141	1080	1370	578	111	139
4	101	158	170	83	130	86	149	1050	1260	649	118	141
5	106	155	130	80	125	86	189	981	1120	623	120	139
6	106	152	110	70	125	100	237	964	1110	572	115	132
7	104	149	94	66	120	123	245	964	1260	542	111	129
8	104	147	120	61	115	113	219	899	1140	512	111	129
9	115	152	160	65	110	104	223	820	1040	578	113	141
10	120	152	190	80	120	106	241	1070	981	501	108	141
11	123	152	105	100	125	138	272	1060	1020	456	111	186
12	118	133	110	120	120	149	276	836	1160	435	111	326
13	118	130	120	130	110	123	305	690	1110	404	134	287
14	123	130	130	140	100	138	399	610	964	404	129	268
15	123	136	110	130	85	147	524	560	1150	350	129	243
16	161	136	86	115	70	113	524	506	2080	332	144	226
17	161	155	100	100	80	115	524	501	1950	284	139	226
18	147	152	140	90	100	120	636	591	1640	249	136	213
19	152	147	130	75	130	128	676	585	1480	241	139	226
20	158	110	120	81	125	130	805	578	1330	230	139	236
21	138	95	115	90	120	130	1020	669	1260	212	136	247
22	173	105	108	91	115	133	1030	754	1160	186	134	250
23	167	130	101	95	99	141	1020	739	1050	170	132	243
24	164	140	100	100	90	141	1080	805	1100	155	127	226
25	164	120	99	80	84	138	1140	1110	1020	136	127	223
26	164	125	94	64	95	125	1170	1610	915	128	134	220
27	164	140	90	52	161	128	1140	1470	844	123	132	213
28	164	130	74	45	223	123	1150	1250	775	125	144	207
29	161	120	71	50	170	138	1160	1170	711	123	144	198
30	158	125	91	54	---	170	1150	1330	656	125	146	195
31	158	---	110	80	---	149	---	1550	---	118	144	---
TOTAL	4204	4130	3598	2672	3407	3921	17927	29172	35726	10807	3956	6032
MEAN	136	138	116	86.2	117	126	598	941	1191	349	128	201
MAX	173	158	190	140	223	170	1170	1610	2080	649	146	326
MIN	95	95	71	45	70	86	141	501	656	118	108	129
AC-FT	8340	8190	7140	5300	6760	7780	35560	57860	70860	21440	7850	11960

CAL YR 1979 TOTAL 146028 MEAN 400 MAX 4760 MIN 71 AC-FT 289600
WTR YR 1980 TOTAL 125552 MEAN 343 MAX 2080 MIN 45 AC-FT 249000

06200000 BOULDER RIVER AT BIG TIMBER, MT

LOCATION.--Lat 45°50'03", long 109°56'17", in SE¼NE¼SE¼ sec.14, T.1 N., R.14 E., Sweet Grass County, Hydrologic Unit 10070002, on left bank 150 ft (46 m) upstream from Old Boulder Bridge, 1 mi (2 km) east of Big Timber, and 1.6 mi (2.6 km) upstream from mouth.

DRAINAGE AREA.--523 mi^2 (1,355 km^2).

PERIOD OF RECORD.--April 1947 to December 1953, March 1955 to current year. Monthly discharge only for April 1947, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 4,056.39 ft (1,236.388 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records good except those for winter period, which are poor. Diversions for irrigation of about 13,300 acres (53.8 km^2), of which about 250 acres (1.01 km^2) is below station. Several observations of water temperature were made during the year and are available in files of Helena distirct office.

AVERAGE DISCHARGE.--31 years, 616 ft^3/s (17.45 m^3/s) 446,300 acre-ft/yr (550 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,840 ft^3/s (279 m^3/s) May 28, 1956, gage height, 7.84 ft (2.390 m); maximum gage height, 8.25 ft (2.515 m) July 8, 1975; minimum discharge, 10 ft^3/s (0.28 m^3/s) about Aug. 26 or 27, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft^3/s (85.0 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 23	0615	*4,830	137	*6.70	2.042	June 20	0615	4,140	117	6.31	1.923
June 13	0715	3,640	103	6.00	1.829						

Minimum discharge, 40 ft^3/s (1.13 m^3/s) Jan. 6, gage height, 1.51 ft (0.460 m), result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	169	140	155	130	142	148	1390	1410	1810	158	171
2	72	172	180	157	150	140	147	1390	1400	1580	141	165
3	73	167	190	140	150	135	141	1280	1380	1590	140	149
4	73	180	190	129	145	110	138	1420	1250	1580	144	140
5	73	180	169	120	140	86	142	1360	1240	1360	126	131
6	73	175	164	105	135	110	155	1570	1250	1240	116	120
7	70	172	164	110	130	130	163	1750	1180	1150	113	111
8	81	169	162	85	125	129	152	1750	1110	1100	112	121
9	88	172	159	85	140	121	154	1760	1380	1060	109	140
10	88	169	159	105	140	121	160	1940	1960	914	108	130
11	93	169	115	120	140	123	167	1550	2630	809	111	150
12	95	162	117	150	130	129	167	1270	3120	690	107	434
13	93	159	120	170	110	117	171	1080	3210	623	117	468
14	88	159	162	180	95	119	190	973	3010	604	115	500
15	92	157	110	170	90	129	219	911	2700	639	122	434
16	138	154	80	150	105	119	231	929	2390	555	153	358
17	177	154	135	130	130	109	230	1100	2390	493	144	320
18	177	154	188	120	160	123	254	1190	2770	486	138	289
19	175	155	172	100	160	121	294	1250	3340	424	171	289
20	183	150	162	110	167	119	351	1840	3630	383	191	274
21	191	130	154	130	166	119	453	2900	3590	351	174	285
22	188	115	154	155	156	125	533	3920	3240	325	167	297
23	191	145	154	160	146	123	601	4350	3020	300	171	274
24	185	145	135	150	130	123	676	3530	2580	286	164	278
25	185	140	145	125	125	136	758	3130	2290	259	156	271
26	197	125	140	115	145	125	814	2370	2290	249	166	253
27	202	120	110	100	160	129	838	1950	2200	234	169	267
28	199	110	90	90	170	134	861	1760	1750	220	186	323
29	199	95	100	80	155	134	945	1610	1580	192	177	306
30	194	100	125	88	---	152	1070	1560	1570	174	174	300
31	183	---	145	115	---	153	---	1470	---	174	173	---
TOTAL	4189	4523	4490	3899	4025	3885	11323	56253	66860	21854	4513	7748
MEAN	135	151	145	126	139	125	377	1815	2229	705	146	258
MAX	202	180	190	180	170	153	1070	4350	3630	1810	191	500
MIN	70	95	80	80	90	86	138	911	1110	174	107	111
AC-FT	8310	8970	8910	7730	7980	7710	22460	111600	132600	43350	8950	15370

CAL YR 1979 TOTAL 181486 MEAN 497 MAX 4480 MIN 70 AC-FT 360000
WTR YR 1980 TOTAL 193562 MEAN 529 MAX 4350 MIN 70 AC-FT 383900

06202510 STILLWATER RIVER ABOVE NYE CREEK, NEAR NYE, MT

LOCATION.--45°23'46", long 109°52'14", in SW¼NE¼SW¼ sec.15, T.5 N., R.15 E., Stillwater County, Hydrologic Unit 10007005, at private bridge 200 ft (61 m) above Nye Creek, 1.0 mi (1.6 km) below Mountain View Creek, 4.3 mi (6.9 km) southwest of Nye, and at mile 41.3 (66.5 km).

DRAINAGE AREA.--193 mi^2 (500 km^2).

PERIOD OF RECORD.--Nov. 1, 1979, to Sept. 30, 1980.

GAGE.--Nonrecording gage. Altitude of gage is 4,880 ft (1,494 m), from topographic map.

REMARKS.--Records fair except those for winter period, which are poor. There are no known diversions or regulation above gage. Several observations of water temperature were made during the year and are available in files of the Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,550 ft^3/s (101 m^3/s) June 18, 1980, gage height, 6.22 ft (1.896 m); minimum daily, 35 ft^3/s (0.99 m^3/s) Jan. 28, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,550 ft^3/s (101 m^3/s) June 18, gage height, 6.22 ft (1.896 m); minimum daily, 35 ft^3/s (0.99 m^3/s) Jan. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		74	70	48	46	45	42	775	411	1450	348	300
2		80	61	53	53	42	45	789	636	1470	339	290
3		79	59	50	51	41	48	767	703	1450	330	290
4		78	56	48	50	41	45	683	738	1450	308	280
5		80	56	49	48	38	54	746	746	1430	291	270
6		82	58	47	50	40	45	1030	857	1420	283	280
7		82	53	47	46	41	42	1140	1430	1420	267	290
8		78	53	43	41	43	44	1060	1830	1380	270	310
9		76	53	38	42	39	46	937	2060	1380	270	430
10		78	56	42	41	41	45	857	2180	1360	280	540
11		78	48	41	42	45	46	710	2140	1270	300	600
12		74	50	47	41	46	44	690	2310	1120	320	580
13		66	48	58	40	42	45	548	2150	746	340	510
14		72	52	61	39	42	46	746	2020	760	370	470
15		66	45	53	38	46	48	717	2450	970	350	430
16		61	38	48	38	39	46	857	2990	804	350	400
17		70	44	48	41	41	50	937	3230	775	350	350
18		66	50	48	48	41	53	937	3190	746	340	300
19		56	45	43	53	38	68	978	3280	731	320	290
20		57	44	47	51	39	151	1250	3280	643	310	270
21		50	50	52	48	42	178	2530	3020	629	310	260
22		52	48	50	50	44	181	2700	3100	597	300	300
23		56	51	52	50	42	229	2770	3200	579	290	290
24		59	53	53	41	44	271	2350	3100	548	290	270
25		63	46	50	42	41	317	1270	2800	519	290	250
26		62	44	45	48	41	348	1110	2500	502	300	220
27		60	44	42	45	38	530	1060	2200	436	300	200
28		56	44	35	46	37	710	995	1900	386	300	190
29		50	44	36	46	38	937	738	1700	386	310	170
30		56	45	38	---	41	978	479	1500	367	330	160
31		---	45	40	---	39	---	218	---	355	310	---
TOTAL		2017	1553	1452	1315	1277	5732	33374	63651	28079	9666	9790
MEAN		67.2	50.1	46.8	45.3	41.2	191	1077	2122	906	312	326
MAX		82	70	61	53	46	978	2770	3280	1470	370	600
MIN		50	38	35	38	37	42	218	411	355	267	160
AC-FT		4000	3080	2880	2610	2530	11370	66200	126300	55690	19170	19420

06204050 WEST ROSEBUD CREEK NEAR ROSCOE, MT

LOCATION.--Lat 45°14'35", long 109°43'50", in NE¼ sec.10, T.7 S., R.16 E., Stillwater County, Hydrologic Unit 10070005, on left bank at Mystic Lake powerplant, 2.0 mi (3.2 km) downstream from Mystic Lake, 13.5 mi (21.5 km) southwest of Roscoe, and at mile 26.8 (43.1 km).

DRAINAGE AREA.--52.1 mi^2 (134.9 km^2).

PERIOD OF RECORD.--September 1965 to current year.

GAGE.--Water-stage recorder and sharp-crested weir. Datum of gage is 6,535.60 ft (1,992.051 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by Mystic Lake (station number 06204000). Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--15 years, 129 ft^3/s (3.653 m^3/s), 33.62 in/yr (854 mm/yr) 93,460 acre-ft/yr (115 hm^3/yr), adjusted for change in contents in Mystic Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,630 ft^3/s (46.2 m^3/s) July 6, 1975, gage height, 4.71 ft (1.436 m); minimum daily, 2.5 ft^3/s (0.071 m^3/s) Apr. 3, 4, 6, 7, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 613 ft^3/s (17.4 m^3/s) June 27 and July 5, gage height, 2.66 ft (0.811 m); minimum daily, 19 ft^3/s (0.54 m^3/s) Dec. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	35	115	164	84	37	23	112	135	458	233	130
2	30	38	114	164	84	36	23	110	135	496	221	128
3	30	37	78	164	84	34	23	109	135	443	224	128
4	30	34	19	164	86	28	23	111	135	490	215	126
5	29	34	20	164	86	28	23	111	133	500	207	126
6	40	34	34	164	86	28	23	112	177	475	198	126
7	42	34	115	164	84	28	23	113	177	458	195	126
8	42	34	110	164	84	28	24	112	177	448	182	128
9	120	34	108	161	82	28	24	114	177	472	169	128
10	117	36	110	161	82	28	24	121	182	489	190	128
11	80	34	108	161	84	26	24	116	190	455	187	133
12	66	36	108	164	84	22	24	113	191	448	187	133
13	55	34	108	164	84	22	24	112	192	402	187	135
14	51	33	108	169	84	22	26	113	188	339	185	137
15	46	33	110	169	84	23	26	113	186	327	166	169
16	46	34	110	172	82	23	25	114	184	330	144	193
17	45	35	108	166	82	23	26	115	184	327	149	187
18	45	34	108	164	82	23	29	113	185	301	149	182
19	48	34	77	164	57	23	32	114	190	312	142	182
20	51	34	110	161	38	24	36	107	195	298	130	182
21	51	33	144	161	36	24	40	129	201	298	130	182
22	54	33	166	161	36	23	49	145	201	267	130	179
23	45	34	166	161	36	23	48	144	268	230	130	177
24	37	34	166	161	35	23	50	140	486	230	130	164
25	45	34	166	135	35	23	71	137	413	264	130	177
26	41	35	166	84	35	23	93	133	475	278	128	171
27	36	39	164	88	35	23	94	133	572	272	128	177
28	34	42	164	88	36	23	101	126	465	258	128	174
29	32	52	164	86	37	23	110	126	392	250	128	174
30	34	111	164	86	---	23	110	126	389	233	128	97
31	34	---	164	86	---	23	---	135	---	242	130	---
TOTAL	1486	1138	3672	4585	1924	788	1271	3729	7310	11090	5080	4582
MEAN	47.9	37.9	118	148	66.3	25.4	42.4	120	244	358	164	153
MAX	120	111	166	172	86	37	110	145	572	500	233	193
MIN	29	33	19	84	35	22	23	107	133	230	128	97
AC-FT	2950	2260	7280	9090	3820	1560	2520	7400	14500	22000	10080	9090
MEAN †	44	27	22	19	24	14	38	258	413	370	157	135
CFSM †	.84	.52	.42	.36	.46	.27	.73	4.95	7.93	7.10	3.01	2.59
IN †	.98	.58	.49	.42	.50	.32	.81	5.70	8.84	8.18	3.48	2.89
AC-FT †	2,720	1,600	1,370	1,170	1,400	880	2,260	15,840	24,570	22,740	9,650	8,030

OBSERVED

CAL YR 1979	TOTAL	44,399.1	MEAN	119	MAX	479	MIN	7.3	AC-FT	88,060
WTR YR 1980	TOTAL	46,655.0	MEAN	127	MAX	572	MIN	19	AC-FT	92,540

ADJUSTED

CAL YR 1979	TOTAL	39,880	MEAN	109	CFSM	2.09	IN	28.48	AC-FT	79,100
WTR YR 1980	TOTAL	46,814	MEAN	128	CFSM	2.46	IN	33.19	AC-FT	92,850

† Adjusted for change in contents of Mystic Lake.

06205000 STILLWATER RIVER NEAR ABSAROKEE, MT

LOCATION.--Lat 45°33'04", long 109°23'12", in NE¼NE¼NW¼ sec.28, T.3 S., R.19 E., Stillwater County, Hydrologic Unit 10070005, on right bank 3 mi (5 km) downstream from Rosebud Creek, 3.5 mi (5.6 km) northeast of Absarokee, 9 mi (14 km) southwest of Columbus, and at mile 9.4 (15.1 km), revised.

DRAINAGE AREA.--975 mi^2 (2,525 km^2).

PERIOD OF RECORD.--July 1910 to September 1914 (no winter records), March 1935 to current year.

REVISED RECORDS.--WSP 1309: 1911(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,873.8 ft (1,180.73 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1914, nonrecording gage, and Mar. 26, 1935, to Sept. 30, 1942, nonrecording gage, at bridge 2 mi (3 km) upstream at different datums.

REMARKS.--Records good except those for winter period, which are fair. Flow partly regulated by Mystic Lake (station number 06204000). Diversions for irrigation of about 24,300 acres (98.3 km^2), of which 400 acres (1.62 km^2) lies below station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--45 years (1935-80), 969 ft^3/s (27.44 m^3/s), 702,000 acre-ft/yr (866 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft^3/s (340 m^3/s) June 15, 1967, gage height, 7.17 ft (2.185 m); minimum observed, 58 ft^3/s (1.64 m^3/s) Apr. 2, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,400 ft^3/s (125 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 23	0845	*6,490	184	*5.40	1.646	June 21	1100	5,850	166	5.16	1.573
June 12	1015	4,410	125	4.58	1.396						

Minimum discharge, 183 ft^3/s (5.18 m^3/s) Mar. 5, gage height, 0.34 ft (0.104 m), result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	338	365	357	405	330	302	281	1600	1960	2890	987	805
2	334	349	427	397	330	281	285	1510	1910	2850	943	773
3	342	372	440	376	330	268	278	1460	1870	3200	907	723
4	334	389	397	376	323	217	272	1650	1810	3110	893	711
5	319	385	319	372	298	193	288	1720	1790	2820	812	699
6	316	376	305	300	288	250	330	1870	1810	2570	729	705
7	316	376	292	290	280	253	357	2080	1790	2460	705	664
8	334	372	345	240	270	247	327	2080	1700	2370	705	669
9	353	369	357	210	270	247	338	2060	1890	2440	669	711
10	422	357	357	290	280	256	365	2720	2560	2370	799	705
11	409	365	305	330	270	288	385	2240	3540	2280	723	838
12	376	334	256	390	270	302	381	1900	4040	2090	687	1260
13	361	349	259	449	260	247	397	1690	3980	1910	760	1440
14	361	342	361	444	240	330	453	1550	3590	1730	786	1460
15	353	345	320	435	210	472	565	1460	3400	1630	818	1330
16	427	338	240	414	210	275	581	1490	3010	1590	936	1280
17	401	338	340	414	250	247	591	1680	2970	1580	866	1180
18	389	338	393	385	309	288	669	1890	3380	1590	825	1100
19	389	338	361	280	316	302	729	1980	4250	1460	818	1090
20	414	319	330	310	327	272	818	2490	4880	1390	832	1050
21	427	260	338	393	349	288	852	3840	5430	1310	799	1050
22	414	285	376	393	312	295	845	5200	5270	1280	779	1030
23	414	319	385	389	272	275	812	5970	4590	1250	760	972
24	393	312	369	401	256	272	838	5070	4080	1250	741	950
25	385	312	397	385	241	278	900	4530	3680	1210	711	922
26	385	259	372	280	288	247	950	3370	3680	1230	711	893
27	389	250	345	220	687	262	1050	2670	3660	1170	723	859
28	397	240	323	190	735	275	1200	2360	3050	1100	748	838
29	427	230	310	210	405	275	1300	2180	2600	1030	735	812
30	401	240	345	220	---	302	1450	2110	2620	1030	723	792
31	381	---	389	250	---	275	---	2020	---	1010	748	---
TOTAL	11701	9823	10710	10438	9206	8581	18887	76440	94790	57200	24378	28311
MEAN	377	327	345	337	317	277	630	2466	3160	1845	786	944
MAX	427	389	440	449	735	472	1450	5970	5430	3200	987	1460
MIN	316	230	240	190	210	193	272	1460	1700	1010	669	664
AC-FT	23210	19480	21240	20700	18260	17020	37460	151600	188000	113500	48350	56150

CAL YR 1979 TOTAL 300255 MEAN 823 MAX 4760 MIN 180 AC-FT 595600
WTR YR 1980 TOTAL 360465 MEAN 985 MAX 5970 MIN 190 AC-FT 715000

06207500 CLARKS FORK YELLOWSTONE RIVER NEAR BELFRY, MT

LOCATION.--Lat 45°00'37", long 109°03'53", in NW¼SW¼NW¼ sec.32, T.9 S., R.22 E., Carbon County, Hydrologic Unit 10070006, on left bank 0.2 mi (0.3 km) upstream from county road bridge and Big Sand Coulee, 0.8 mi (1.3 km) north of Wyoming-Montana State line, 9.5 mi (15.3 km) southwest of Belfry, and at mile 71.2 (114.6 km), revised.

DRAINAGE AREA.--1,154 mi^2 (2,989 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1921 to current year. Monthly discharge only for some period, published in WSP 1309. Published as Clarks Fork at Chance prior to October 1956 and as Clarks Fork Yellowstone River at Chance October 1956 to September 1968.

REVISED RECORDS.--WSP 1309: 1922 (M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,986.24 ft (1,215.006 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Nov. 15, 1934, nonrecording gage, and Nov. 15, 1934, to July 26, 1951, water-stage recorder at bridge 0.4 mi (0.6 km) downstream of different datum. July 27, 1951, to Sept. 30, 1953, water-stage recorder at present site at datum 0.98 ft (0.299 m) higher.

REMARKS.--Water-discharge records good except those for January and February, which are poor. Diversions for irrigation of about 11,100 acres (44.9 km^2) above station.

AVERAGE DISCHARGE.--59 years, 953 ft^3/s (26.99 m^3/s), 690,400 acre-ft/yr (851 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft^3/s (360 m^3/s) July 6, 1975, gage height, 8.77 ft (2.673 m); minimum observed, 32 ft^3/s (0.91 m^3/s) Apr. 26, 1961, result of discharge measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,400 ft^3/s (153 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 23	0606	*8,590	243	*7.19	2.192	June 22	0200	6,360	180	6.18	1.884
June 13	0500	6,120	173	6.06	1.847						

Minimum discharge, 113 ft^3/s (3.20 m^3/s) all or part of each day Oct. 7-9, 14, 15, gage height, 0.75 ft (0.229 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	136	145	247	277	230	211	180	1770	2100	2980	578	254
2	133	151	296	254	240	225	183	1950	2040	2820	578	277
3	130	200	340	236	280	210	183	1830	1890	3220	512	325
4	124	204	322	251	269	190	180	2060	1820	3220	483	381
5	121	232	300	262	240	230	183	2190	1820	2810	423	288
6	119	288	285	210	236	220	187	2620	1820	2530	363	269
7	116	288	285	190	230	230	187	2910	1730	2390	331	254
8	113	277	277	180	210	236	177	3090	1690	2220	313	243
9	116	292	285	170	190	232	177	2950	2160	2490	304	254
10	121	285	273	190	200	229	190	3310	3120	2390	288	266
11	119	285	240	230	210	232	193	2760	4520	2190	273	520
12	116	266	170	260	210	221	187	2130	5250	1950	262	964
13	116	258	210	310	200	200	183	1840	5750	1720	262	1210
14	116	262	281	304	190	221	193	1490	5540	1500	277	1430
15	121	262	240	296	180	218	225	1390	5010	1350	285	1210
16	136	266	180	285	200	211	254	1390	4170	1220	309	1440
17	139	266	260	269	230	183	229	1950	4000	1190	345	1140
18	139	273	331	266	260	211	236	1980	4180	1280	269	908
19	139	277	292	250	280	214	304	2210	4730	1220	258	1380
20	142	269	285	230	281	207	483	2880	5480	1090	269	1230
21	151	229	273	251	266	200	781	4910	5930	980	266	1080
22	148	214	269	285	254	204	916	7110	5970	932	236	1040
23	145	236	266	266	232	197	948	8170	5480	916	221	924
24	142	273	240	277	229	187	996	7330	4660	900	214	879
25	142	288	254	220	225	190	1130	5690	4130	1030	200	802
26	163	273	247	170	232	183	1220	4180	4150	948	197	739
27	163	254	207	160	251	177	1310	3100	4230	823	285	690
28	154	258	173	160	258	183	1290	2600	3430	760	254	620
29	160	232	163	170	232	177	1410	2300	2910	711	247	578
30	170	221	200	180	---	180	1510	2160	2730	655	229	548
31	160	---	225	200	---	187	---	1930	---	641	229	---
TOTAL	4210	7524	7916	7259	6745	6396	15825	94180	112440	51076	9560	22143
MEAN	136	251	255	234	233	206	528	3038	3748	1648	308	738
MAX	170	292	340	310	281	236	1510	8170	5970	3220	578	1440
MIN	113	145	163	160	180	177	177	1390	1690	641	197	243
AC-FT	8350	14920	15700	14400	13380	12690	31390	186800	223000	101300	18960	43920

CAL YR 1979 TOTAL 316744 MEAN 868 MAX 7580 MIN 113 AC-FT 628300
WTR YR 1980 TOTAL 345274 MEAN 943 MAX 8170 MIN 113 AC-FT 684900

06207500 CLARKS FORK YELLOWSTONE RIVER NEAR BELFRY, MT--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at bridge on county road, 0.4 mi (0.6 km) downstream from discharge station, just upstream from Sand Coulee, 0.8 mi (1.3 km) north of Wyoming-Montana State line, 9.5 mi (15.3 km) southwest of Belfry, and at mile 78.1 (125.7 km).

PERIOD OF RECORD.--Water years 1966 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT									
02...	1040	133	--	--	7.7	--	12.0	180	16
NOV									
14...	0830	258	0	350	8.2	-2.0	2.5	160	21
27...	1435	235	--	--	--	--	2.5	170	34
DEC									
18...	1420	327	--	--	--	--	5.0	150	20
JAN									
23...	1400	261	--	--	--	--	3.5	140	16
FEB									
26...	1230	240	1	460	8.5	11.0	4.0	150	22
APR									
09...	1100	169	2	450	8.4	11.0	6.0	170	31
MAY									
06...	1130	2770	0	80	7.4	18.5	10.5	39	0
29...	1130	2180	60	117	8.2	12.0	8.5	50	2
JUN									
24...	1400	4550	0	80	8.3	24.0	14.0	35	2
JUL									
18...	0900	1370	0	130	--	20.0	11.0	60	3
AUG									
11...	1335	276	0	250	8.5	30.0	18.5	130	5
SEP									
12...	1035	1060	2	200	8.2	15.0	12.0	76	4

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT									
02...	51	12	13	.4	2.5	200	0	160	6.4
NOV									
14...	43	12	12	.4	1.8	170	0	140	1.7
27...	48	12	11	.4	1.5	160	3	140	--
DEC									
18...	43	11	12	.4	1.2	150	4	130	--
JAN									
23...	38	10	11	.4	1.5	140	3	120	--
FEB									
26...	41	12	12	.4	1.8	150	3	130	.8
APR									
09...	25	27	15	.5	1.3	170	0	140	1.1
MAY									
06...	10	3.4	5.4	.4	.1	61	0	50	3.9
29...	12	4.6	5.8	.4	1.6	58	0	48	.6
JUN									
24...	8.0	3.6	11	.8	.9	40	0	33	.3
JUL									
18...	16	4.8	4.5	.3	1.0	70	0	57	--
AUG									
11...	35	11	11	.4	2.0	140	6	120	.8
SEP									
12...	24	3.9	8.4	.4	.1	88	0	72	.9

06207500 CLARKS FORK YELLOWSTONE RIVER NEAR BELFRY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)
OCT									
02...	37	2.6	.2	8.6	224	.30	80.4	.90	.04
NOV									
14...	49	.7	.2	7.7	209	.28	146	.20	.00
27...	52	2.6	.2	8.6	221	.30	140	.80	.00
DEC									
18...	46	.9	.2	9.8	206	.28	182	.17	.07
JAN									
23...	34	1.4	.3	8.1	177	.24	125	.26	.02
FEB									
26...	56	.7	.2	8.1	212	.29	137	.16	.03
APR									
09...	58	1.5	.3	9.9	220	.30	100	.30	.03
MAY									
06...	--	.2	.1	8.3	--	--	--	.12	.34
29...	12	.0	.1	9.2	62	.08	365	.06	.11
JUN									
24...	20	3.4	.4	6.5	74	.10	909	1.1	.07
JUL									
18...	15	.8	.1	7.3	85	.12	314	.16	.05
AUG									
11...	28	1.1	.2	7.1	171	.23	127	.17	.03
SEP									
12...	23	.5	--	5.7	110	.15	315	.26	--

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39731)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39741)	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39761)
JUN							
24...	1400	.00	0	.00	0	.00	.0
AUG							
11...	1335	.00	0	.00	0	.00	.0
SEP							
12...	1035	.00	0	.00	0	.00	.0

06207510 BIG SAND COULEE AT WYOMING-MONTANA STATE LINE

LOCATION.--Lat 45°00'17", long 109°03'29", in SE¼NE¼SW¼ sec.32, T.9 S., R.22 E., Carbon County, Mt., Hydrologic Unit 10070006, on right bank 0.3 mi (0.5 km) north of Wyoming-Montana State line and 0.5 mi (0.8 km) upstream from mouth.

DRAINAGE AREA.--134 mi^2 (347 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1973 to current year (no winter records).

GAGE.--Water-stage recorder. Altitude of gage is 4,000 ft (1,219 m), from topographic map.

REMARKS.--Water-discharge records good except those for Mar. 1 to Apr. 18, which are poor. Natural flow of stream affected by transbasin diversions and return flow from irrigated areas.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 478 ft^3/s (13.5 m^3/s) May 10, 1980, gage height, 5.13 ft (1.564 m), from rating curve extended above 180 ft^3/s (5.10 m^3/s) on basis of slope-area measurement at gage height 4.75 ft (1.448 m); minimum daily during periods of operation, 1.2 ft^3/s (0.034 m^3/s) Apr. 18, 1974.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 478 ft^3/s (13.5 m^3/s) May 10, gage height, 5.13 ft (1.564 m); minimum daily during period of operation, 2.4 ft^3/s (0.068 m^3/s) Mar. 1-3, 6-12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68					2.4	2.6	52	85	57	61	89
2	63					2.4	2.6	39	80	53	64	91
3	71					2.4	2.6	37	80	61	58	91
4	76					2.8	2.6	42	84	66	69	106
5	75					3.9	2.6	51	84	63	69	113
6	72					2.4	2.6	51	90	58	71	108
7	80					2.4	2.6	47	84	63	77	106
8	69					2.4	2.6	46	87	66	82	91
9	78					2.4	2.6	47	73	63	85	112
10	89					2.4	2.6	237	64	52	85	119
11	89					2.4	2.6	110	71	38	80	113
12	86					2.4	2.6	65	78	40	80	116
13	78					2.5	2.6	42	72	36	81	114
14	80					2.5	2.6	41	65	35	85	104
15	80					2.5	2.6	51	70	38	85	93
16	86					2.5	2.6	62	94	41	93	96
17	84					2.5	2.6	82	98	51	110	116
18	84					2.5	3.7	85	75	60	114	107
19	85					2.5	8.2	84	96	66	107	110
20	91					2.5	9.7	58	113	77	104	114
21	101					2.5	9.7	60	124	73	100	106
22	98					2.5	10	70	129	62	98	98
23	104					2.5	9.0	73	130	51	101	93
24	113					2.5	9.0	67	119	52	103	91
25	107					2.5	9.7	65	97	46	85	97
26	108					2.5	15	84	97	50	77	103
27	118					2.5	15	60	84	72	82	103
28	113					2.5	39	46	67	75	73	103
29	116					2.5	60	53	60	64	71	101
30	113					2.5	44	65	60	50	86	96
31	110					2.6	---	73	---	57	86	---
TOTAL	2785					78.3	286.2	2045	2610	1736	2622	3100
MEAN	89.8					2.53	9.54	66.0	87.0	56.0	84.6	103
MAX	118					3.9	60	237	130	77	114	119
MIN	63					2.4	2.6	37	60	35	58	89
AC-FT	5520					155	568	4060	5180	3440	5200	6150

06207510 BIG SAND COULEE AT WYOMING-MONTANA STATE LINE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: May 1973 to current year (no winter records).

REMARKS.--Once daily water temperatures are available in the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 37,200 mg/L May 8, 1975; minimum daily mean, 1 mg/L Mar. 27, 1977.
SEDIMENT LOADS: Maximum daily, 13,100 tons (11,900 megagrams) May 10, 1980; minimum daily, 0.01 ton (0.01 megagram) Mar. 3, 7, 1976, Mar. 27, Apr. 1, 1977.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 17,000 mg/L May 10; minimum daily mean, 4.0 mg/L Apr. 18.
SEDIMENT LOADS: Maximum daily, 13,100 tons (11,900 megagrams) May 10; minimum daily, 0.04 ton (0.04 megagram) Apr. 17, 18.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
MAY										
06...	1400	57	0	225	7.3	24.0	16.5	59	4	17
29...	1530	59	60	260	8.0	10.5	12.5	67	0	19
JUL										
18...	1300	62	0	242	7.9	25.0	16.0	80	0	23
AUG										
11...	1630	79	0	325	8.4	30.0	19.5	110	0	32
SEP										
12...	1400	122	60	220	7.7	14.0	17.5	80	6	22

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
MAY										
06...	4.1	24	1.4	1.4	55	48	1.2	.1	10	140
29...	4.7	25	1.3	2.2	69	48	2.2	.2	10	154
JUL										
18...	5.5	17	.8	2.0	82	30	1.5	.4	5.3	135
AUG										
11...	8.3	18	.7	8.3	120	40	5.3	.3	8.5	194
SEP										
12...	6.0	17	.8	1.4	74	37	8.3	.2	7.3	145

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)
MAY									
06...	.19	21.5	.21	.17	.10	.12	.89	.99	.48
29...	.21	24.5	.26	.28	.01	--	.99	1.0	.38
JUL									
18...	.18	22.6	.31	.22	.01	--	.76	.77	.20
AUG									
11...	.26	41.4	.68	.36	.02	--	.92	.94	.10
SEP									
12...	.20	47.8	.28	.29	.01	--	1.4	1.4	1.30

YELLOWSTONE RIVER BASIN

06207510 BIG SAND COULEE AT WYOMING-MONTANA STATE LINE--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCEN- TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN- TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN- TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN- TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN- TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN- TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	22	4.0									---	---
2	45	7.7									---	---
3	29	5.6									---	---
4	42	8.6									---	---
5	47	9.5									55	.58
6	50	9.7									53	.34
7	52	11									49	.32
8	42	7.8									50	.32
9	84	18									25	.16
10	90	22									38	.25
11	51	12									37	.24
12	44	10									46	.30
13	38	8.0									43	.29
14	34	7.3									35	.24
15	33	7.1									47	.32
16	39	9.1									51	.34
17	65	15									46	.31
18	56	13									28	.19
19	55	13									18	.12
20	46	11									40	.27
21	40	11									37	.25
22	38	10									43	.29
23	40	11									48	.32
24	83	25									54	.36
25	47	14									52	.35
26	49	14									50	.34
27	45	14									34	.23
28	45	14									15	.10
29	32	10									40	.27
30	30	9.2									37	.25
31	21	6.2									40	.28
TOTAL	---	347.8									---	7.63
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	44	.31	793	111	114	26	82	13	65	11	60	14
2	25	.18	689	73	185	40	50	7.2	330	57	70	17
3	44	.31	224	22	105	23	83	14	391	61	43	11
4	20	.14	238	27	146	33	71	13	140	26	43	12
5	37	.26	703	97	125	28	72	12	57	11	100	31
6	26	.18	494	68	233	57	58	9.1	57	11	116	34
7	32	.22	221	28	185	42	50	8.5	41	8.5	61	17
8	44	.31	174	22	380	89	191	34	41	9.1	49	12
9	29	.20	162	21	158	31	290	49	47	11	46	14
10	32	.22	17000	13100	98	17	1520	213	79	18	55	18
11	47	.33	6840	2030	107	21	1470	151	71	15	255	78
12	19	.13	2560	449	100	21	195	21	76	16	682	214
13	18	.13	380	43	88	17	153	15	75	16	908	279
14	20	.14	272	30	110	19	142	13	46	11	340	95
15	30	.21	405	56	989	187	258	26	50	11	285	72
16	21	.15	1550	259	1560	396	460	51	45	11	740	192
17	5	.04	2760	611	2920	773	108	15	50	15	902	283
18	4	.04	751	172	550	111	71	12	470	145	920	266
19	19	.42	266	60	189	49	98	17	510	147	922	274
20	75	2.0	240	38	248	76	145	30	131	37	869	267
21	96	2.5	289	47	333	111	82	16	98	26	818	234
22	225	6.1	238	45	385	134	77	13	98	26	228	60
23	225	5.5	179	35	304	107	64	8.8	94	26	103	26
24	107	2.6	151	27	277	89	62	8.7	65	18	68	17
25	168	4.4	176	31	245	64	48	6.0	62	14	66	17
26	98	4.0	2810	637	156	41	45	6.1	56	12	82	23
27	117	4.7	207	34	62	14	79	15	59	13	76	21
28	680	72	277	34	43	7.8	88	18	72	14	139	39
29	530	86	349	50	108	17	70	12	57	13	148	40
30	940	112	357	63	144	23	65	8.8	52	12	60	16
31	---	---	128	25	---	---	71	11	51	12	---	---
TOTAL	---	305.72	---	18345	---	2663.8	---	847.2	---	833.6	---	2693

TOTAL LOAD FOR YEAR: 26043.75 TONS

06207510 BIG SAND COULEE AT WYOMING-MONTANA STATE LINE--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)
SEP								
12...	1400	17.5	122	959	316	74	97	100

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)
JUL					
18...	1300	43	88	99	100

06208800 CLARKS FORK YELLOWSTONE RIVER NEAR SILESIA, MT

LOCATION.--Lat 45°30'48", long 108°49'42", in NW1/4 SE1/4 sec.1, T.4 S., R.23 E., Carbon County, Hydrologic Unit 10070006, on left bank 0.5 mi (0.8 km) downstream from Whitehorse Canal intake, 1 mi (2 km) upstream from Rock Creek, 3 mi (5 km) south of Silesia, and at mile 16.3 (26.2 km).

DRAINAGE AREA.--2,093 mi^2 (5,421 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1969 to current year. Records for July 1921 to September 1969 (published as Clarks Fork Yellowstone River at Edgar) at site 5 mi (8 km) upstream not equivalent owing to diversion in Whitehorse Canal during irrigation season.

GAGE.--Water-stage recorder. Datum of gage is 3,405.79 ft (1,038.085 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Corps of Army Engineers).

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversion for irrigation of about 42,600 acres (172 km^2) of which about 1,100 acres (4.45 km^2) lies below station. In addition, about 9,000 acres (36.4 km^2) of land above station are irrigated by diversions from the adjoining Rock Creek basin.

AVERAGE DISCHARGE.--11 years, 1,199 ft^3/s (33.96 m^3/s), 868,700 acre-ft/yr (1.07 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,800 ft^3/s (334 m^3/s) June 10, 1972, gage height, 7.51 ft (2.289 m); maximum gage height, 7.82 ft (2.384 m) July 6, 1975; minimum discharge, 88 ft^3/s (2.36 m^3/s) July 21, 1977, gage height, 0.72 ft (0.219 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,300 ft^3/s (150 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 23	1500	*7,560	214	*6.30	1.920	June 22	1400	6,470	183	5.72	1.743
June 13	1500	5,840	165	5.41	1.649						

Minimum daily discharge, 180 ft^3/s (5.10 m^3/s) Mar. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	368	521	514	320	490	380	404	1660	2170	2650	587	471
2	387	505	556	350	520	350	404	1890	2230	2590	581	471
3	413	518	583	340	600	360	435	1880	2060	2560	634	471
4	444	560	621	340	540	230	471	1820	1920	3090	634	513
5	444	595	551	360	500	180	513	2050	1830	2760	574	555
6	458	594	519	300	520	260	501	2260	1860	2390	519	495
7	473	600	509	280	480	440	483	2490	1810	2150	429	477
8	479	593	498	240	410	490	441	2640	1750	1940	365	501
9	479	575	494	230	430	480	410	2620	1920	1930	354	513
10	494	587	480	300	400	513	410	3230	2530	2090	359	525
11	500	579	460	310	390	519	429	3270	3790	1870	375	555
12	484	572	400	380	370	525	416	2500	4870	1660	334	979
13	460	544	430	460	360	471	398	1940	5380	1490	339	1250
14	440	541	479	520	360	441	404	1640	5440	1340	359	1610
15	433	535	440	520	310	507	435	1450	5340	1150	365	1620
16	528	538	240	500	360	464	483	1350	4870	1030	471	1460
17	507	542	400	470	470	429	483	1620	4070	958	513	1690
18	493	545	500	470	560	404	483	1890	4160	1040	600	1350
19	484	558	540	410	630	441	519	1970	4630	1100	613	1250
20	487	540	553	350	600	441	613	2210	5380	1090	561	1820
21	513	490	561	440	550	429	874	3590	5900	1040	555	1460
22	520	500	551	460	500	429	1120	5690	6180	916	507	1440
23	511	490	521	500	470	423	1200	7040	5920	850	513	1300
24	500	490	534	520	490	404	1180	7150	5140	810	525	1240
25	500	490	459	470	520	404	1310	6290	4460	787	489	1210
26	497	480	440	360	540	392	1400	4900	4160	899	410	1140
27	516	460	430	250	460	387	1430	3550	4120	842	354	1100
28	529	470	410	300	440	375	1480	2830	3680	810	410	1060
29	561	470	360	360	420	381	1480	2460	2990	727	398	993
30	544	485	330	380	---	381	1530	2320	2610	683	404	924
31	543	---	300	430	---	429	---	2180	---	634	453	---
TOTAL	14989	15967	14663	11920	13690	12759	22139	90380	113170	45876	14584	30443
MEAN	484	532	473	385	472	412	738	2915	3772	1480	470	1015
MAX	561	600	621	520	630	525	1530	7150	6180	3090	634	1820
MIN	368	460	240	230	310	180	398	1350	1750	634	334	471
AC-FT	29730	31670	29080	23640	27150	25310	43910	179300	224500	91000	28930	60380

CAL YR 1979 TOTAL 375216 MEAN 1028 MAX 7080 MIN 240 AC-FT 744200
WTR YR 1980 TOTAL 400580 MEAN 1094 MAX 7150 MIN 180 AC-FT 794600

06208800 CLARKS FORK YELLOWSTONE RIVER NEAR SILESIA, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: August 1977 to current year.

INSTRUMENTATION.--Temperature recorder since Aug. 24, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 24.0°C Aug. 6, 1979; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 22.5°C Aug. 12; minimum, 0.0°C on many days during November to March.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	15.0	10.5	13.0	5.5	4.5	5.0	.0	.0	.0	.0	.0	.0
2	14.5	11.5	13.0	4.5	3.0	4.0	.0	.0	.0	.5	.0	.0
3	11.5	10.0	11.0	6.0	3.0	4.5	.5	.0	.0	.5	.0	.0
4	13.0	9.5	11.5	5.0	3.5	4.5	1.0	.0	.5	.0	.0	.0
5	14.0	10.5	12.0	3.5	2.5	3.0	2.0	1.0	1.5	.0	.0	.0
6	15.0	11.0	13.0	4.5	2.0	3.5	2.0	1.0	1.5	.0	.0	.0
7	14.5	12.5	13.5	5.0	3.0	4.0	3.0	1.5	2.5	.0	.0	.0
8	13.5	9.5	12.5	5.5	4.0	4.5	2.0	1.0	1.5	.0	.0	.0
9	10.0	7.5	8.5	5.0	3.5	4.0	3.5	2.0	2.5	.0	.0	.0
10	10.5	7.0	9.0	4.5	3.0	4.0	3.5	.5	2.5	.0	.0	.0
11	13.0	9.0	11.0	4.5	3.5	4.0	.5	.0	.0	.0	.0	.0
12	12.0	10.5	11.5	4.0	2.0	3.0	.0	.0	.0	.0	.0	.0
13	13.5	10.0	12.0	3.5	1.5	2.5	.0	.0	.0	.0	.0	.0
14	14.0	10.5	12.5	4.0	1.5	2.5	.0	.0	.0	.0	.0	.0
15	13.0	11.0	12.0	4.0	2.0	3.0	.0	.0	.0	.0	.0	.0
16	13.0	10.5	11.5	4.0	2.0	3.0	.0	.0	.0	.0	.0	.0
17	12.0	10.5	11.0	3.5	3.5	3.5	.0	.0	.0	.0	.0	.0
18	11.5	10.0	11.0	4.5	3.0	3.5	.0	.0	.0	.0	.0	.0
19	11.5	9.5	10.5	3.5	2.5	3.5	.0	.0	.0	.0	.0	.0
20	9.5	6.5	8.0	3.0	1.0	2.0	.0	.0	.0	.0	.0	.0
21	7.0	5.5	6.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
22	9.0	6.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	9.0	7.0	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	11.0	8.0	9.5	.5	.0	.0	.5	.0	.0	.0	.0	.0
25	11.0	8.5	10.0	1.0	.0	.5	.5	.0	.0	.0	.0	.0
26	11.0	9.0	10.0	.5	.0	.0	.5	.0	.0	.0	.0	.0
27	9.5	7.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	8.5	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	7.5	6.0	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	7.0	4.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	6.5	4.0	5.0	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	15.0	4.0	10.0	6.0	.0	2.5	3.5	.0	.5	.5	.0	.0

06208800 CLARKS FORK YELLOWSTONE RIVER NEAR SILESIA, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	1.0	.0	.5	8.0	3.5	5.5	15.5	11.5	13.5
2	.0	.0	.0	1.5	.5	1.0	8.0	7.0	7.5	14.5	11.0	13.0
3	.0	.0	.0	2.0	.0	1.5	---	6.5	---	14.5	11.0	12.5
4	.0	.0	.0	.0	.0	.0	---	7.0	---	13.5	11.5	12.5
5	.0	.0	.0	.0	.0	.0	12.0	8.5	10.0	15.0	11.5	13.0
6	.0	.0	.0	.5	.0	.0	12.0	9.0	10.5	15.0	12.0	13.5
7	.0	.0	.0	1.0	.0	.5	9.0	7.0	7.5	12.5	11.0	11.5
8	.0	.0	.0	1.0	.0	.5	7.5	5.5	7.5	---	9.5	---
9	.0	.0	.0	1.5	.0	.5	7.5	6.5	7.0	---	---	---
10	.0	.0	.0	---	1.0	---	7.5	7.5	7.0	11.5	7.5	9.5
11	.0	.0	.0	5.5	2.5	4.0	9.5	7.5	8.0	8.0	7.0	7.5
12	.0	.0	.0	6.0	4.0	5.0	10.5	6.5	8.5	9.5	6.5	8.0
13	.0	.0	.0	6.5	2.5	4.5	11.5	6.0	9.0	12.0	8.0	10.0
14	.0	.0	.0	7.0	3.5	5.5	14.5	8.5	11.5	14.0	9.5	12.0
15	.0	.0	.0	6.0	4.0	5.0	12.5	9.5	11.5	14.5	11.5	13.0
16	.0	.0	.0	4.5	2.0	---	13.0	8.0	10.5	15.5	12.0	14.0
17	.0	.0	.0	6.5	2.5	4.5	14.0	9.5	11.5	15.5	12.0	14.0
18	.0	.0	.0	7.0	4.0	5.5	13.0	10.5	12.0	15.5	12.5	14.0
19	.0	.0	.0	6.0	5.0	5.5	15.5	10.0	13.0	15.0	12.0	14.0
20	.0	.0	.0	7.5	4.0	6.0	17.0	12.5	15.0	16.5	13.0	14.5
21	.0	.0	.0	7.5	6.0	7.0	16.5	13.5	15.0	15.5	14.0	14.5
22	.0	.0	.0	8.0	5.5	7.0	14.5	13.0	13.5	14.5	11.5	13.0
23	.0	.0	.0	8.0	6.0	7.0	15.0	11.5	13.5	12.5	10.5	11.5
24	.0	.0	.0	7.5	6.5	7.0	15.0	12.0	13.5	11.5	9.5	10.5
25	.0	.0	.0	6.5	5.0	5.5	14.5	12.0	13.0	10.5	9.0	9.5
26	.5	.0	.0	7.0	3.5	5.5	14.0	10.5	12.5	9.0	7.0	8.0
27	2.0	.5	1.0	10.0	5.0	---	15.0	10.5	13.0	11.0	8.0	9.0
28	2.0	.5	1.5	7.5	6.0	7.0	15.5	11.5	13.5	12.5	10.5	11.5
29	1.0	.0	.5	7.5	5.5	7.0	15.5	12.0	14.0	13.0	11.0	12.0
30	---	---	---	8.0	3.5	7.0	14.5	12.0	13.5	13.5	11.0	12.0
31	---	---	---	3.0	1.5	2.5	---	---	---	14.0	11.0	12.0
MONTH	2.0	.0	.0	10.0	.0	4.0	17.0	3.5	11.0	16.5	6.5	12.0
		JUNE			JULY			AUGUST			SEPTEMBER	
1	15.0	11.5	13.0	17.0	14.0	15.5	---	---	---	18.0	13.5	15.5
2	14.5	12.0	13.5	18.5	16.0	17.0	---	---	---	17.0	14.5	16.0
3	15.5	12.5	14.0	18.0	16.5	17.0	---	---	---	17.5	14.5	16.0
4	16.0	13.0	14.5	17.0	14.5	16.0	---	---	---	18.0	13.5	15.5
5	16.5	13.5	15.0	17.0	15.0	16.0	---	---	---	19.0	14.0	16.5
6	14.0	12.0	12.5	19.0	16.5	17.5	---	---	---	20.0	15.5	17.5
7	14.5	11.0	12.5	19.0	16.5	18.0	---	---	---	18.5	17.0	17.5
8	16.5	11.5	14.0	---	16.5	---	---	---	---	17.0	13.5	15.5
9	18.5	14.0	16.0	---	---	---	---	---	---	17.0	12.5	15.0
10	18.5	15.5	17.0	---	---	---	---	---	---	18.0	15.0	16.5
11	16.5	15.5	15.5	---	---	---	---	---	---	17.5	16.0	16.5
12	15.0	13.0	14.0	---	---	---	22.5	---	---	17.5	15.0	16.5
13	14.5	11.5	13.0	---	---	---	19.5	17.5	18.5	17.0	15.5	16.0
14	13.5	11.5	13.0	---	---	---	20.0	16.0	18.0	17.0	14.5	16.0
15	13.0	11.0	12.0	---	---	---	19.0	17.0	18.0	17.0	13.0	15.0
16	13.5	11.0	12.5	---	---	---	19.5	16.0	18.0	13.5	11.5	13.0
17	16.0	12.5	14.0	---	---	---	21.0	16.5	19.0	15.0	12.0	13.5
18	16.0	14.5	15.0	---	---	---	19.5	17.0	18.5	14.5	13.0	14.0
19	15.5	13.5	14.5	---	---	---	17.0	15.0	16.0	15.5	13.5	14.5
20	16.0	14.0	15.0	---	---	---	18.0	14.0	16.0	15.0	13.0	14.0
21	16.0	13.5	15.0	---	---	---	19.5	15.0	17.0	14.0	12.5	13.0
22	16.0	13.0	14.5	---	---	---	18.0	16.0	17.0	13.0	10.5	12.0
23	15.5	13.0	14.5	---	---	---	19.0	15.0	17.0	14.0	12.0	13.0
24	15.5	12.5	14.0	---	---	---	20.5	15.5	18.0	13.0	11.5	12.5
25	16.5	13.5	15.0	---	---	---	19.0	16.5	17.5	13.0	11.0	12.0
26	18.0	14.5	16.0	---	---	---	19.5	15.0	17.5	13.5	11.0	12.5
27	17.5	14.5	15.5	---	---	---	18.0	16.0	17.0	14.5	12.0	13.5
28	15.5	13.0	14.5	---	---	---	18.5	14.0	16.5	14.0	13.0	13.5
29	16.5	14.0	15.5	---	---	---	19.0	15.5	17.0	14.5	11.5	13.0
30	16.0	14.5	15.0	---	---	---	16.5	14.5	15.5	15.0	12.5	14.0
31	---	---	---	---	---	---	17.0	13.5	15.0	---	---	---
MONTH	18.5	11.0	14.5	19.0	14.0	16.5	22.5	13.5	17.0	20.0	10.5	14.5
YEAR	22.5	.0	7.5									

06209500 ROCK CREEK NEAR RED LODGE, MT

LOCATION (REVISED).--Lat 45°07'15", long 109°17'45", in NW¼NW¼ sec.20, T.8 S., R.20 E., Carbon County, Hydrologic Unit 10070006, on left bank 10 ft (3.0 m) downstream from bridge, 3.2 mi (5.1 km) upstream from West Fork, 4.5 mi (7.2 km) southwest of Red Lodge, and at mile 46.0 (74.0 km).

DRAINAGE AREA.--124 mi^2 (321 km^2).

PERIOD OF RECORD.--April to December 1932, May 1934, to current year. Monthly discharge only for May 1934, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 6,099.42 ft (1,859.103 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1937, nonrecording gage at same site and datum.

REMARKS.--Records fair except those for winter period, which are poor. Flow partly regulated by Glacier Lake. No diversions above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--46 years, 174 ft^3/s (4.928 m^3/s), 126,100 acre-ft/yr (155 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,110 ft^3/s (88.1 m^3/s) June 4, 1957, gage height, 4.78 ft (1.457 m), from rating curve extended above 1,300 ft^3/s (36.8 m^3/s); maximum gage height observed, 4.80 ft (1.463 m) June 1937; minimum discharge observed, 14 ft^3/s (0.40 m^3/s) Nov. 29, 1954, result of discharge measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 660 ft^3/s (18.7 m^3/s) and maximums (*):

		Discharge		Gage height				Discharge		Gage height	
Date	Time	(ft^3/s)	(m^3/s)	(ft)	(m)	Date	Time	(ft^3/s)	(m^3/s)	(ft)	(m)
May 21	2000	*1,620	45.9	*4.20	1.280	June 21	2330	1,220	34.6	3.87	1.180

Minimum discharge, 17 ft^3/s (0.48 m^3/s) Feb. 25, gage height 1.06 ft (0.478 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	49	38	36	36	30	28	132	363	648	328	215
2	80	47	46	35	38	30	30	138	359	648	316	203
3	78	54	47	36	34	30	28	184	359	682	308	222
4	76	55	44	35	31	26	28	172	363	648	277	203
5	74	55	42	35	31	26	30	174	386	608	252	191
6	72	54	42	27	31	28	30	211	377	583	241	183
7	71	52	40	22	31	29	29	230	357	577	235	186
8	72	53	39	20	29	30	27	247	360	583	231	191
9	71	52	39	22	30	30	27	277	482	635	245	188
10	70	51	39	33	30	30	28	294	688	635	292	140
11	68	50	37	35	30	30	28	236	840	608	284	208
12	68	45	30	38	30	30	28	206	904	552	284	235
13	68	45	34	38	28	28	28	184	890	511	300	238
14	67	46	38	36	25	31	31	176	807	483	288	255
15	67	47	40	35	21	30	32	178	749	483	281	238
16	69	48	42	34	28	28	31	188	707	440	300	241
17	67	50	44	32	30	29	33	249	714	456	288	218
18	67	50	40	31	31	29	36	260	786	440	270	203
19	67	49	39	28	30	30	39	308	877	410	266	294
20	67	45	38	29	30	29	47	606	960	405	248	266
21	65	38	37	30	30	30	53	1140	1110	381	238	258
22	65	48	37	32	30	30	58	1350	1080	381	231	237
23	64	45	36	32	30	29	60	1350	978	386	231	228
24	63	44	36	33	27	30	71	1070	817	391	231	213
25	60	41	36	31	26	30	79	785	770	391	228	201
26	61	36	34	25	24	28	82	577	809	386	245	191
27	57	33	32	18	28	30	90	500	770	363	238	182
28	59	32	31	19	30	30	103	435	615	345	231	173
29	59	35	32	22	30	28	109	410	583	337	222	166
30	57	37	33	28	---	30	120	391	628	337	215	160
31	53	---	37	32	---	28	---	372	---	337	215	---
TOTAL	2083	1386	1179	939	859	906	1443	13030	20488	15070	8059	6327
MEAN	67.2	46.2	38.0	30.3	29.6	29.2	48.1	420	683	486	260	211
MAX	81	55	47	38	38	31	120	1350	1110	682	328	294
MIN	53	32	30	18	21	26	27	132	357	337	215	140
AC-FT	4130	2750	2340	1860	1700	1800	2860	25840	40640	29890	15990	12550

CAL YR 1979	TOTAL 54360	MEAN 149	MAX 825	MIN 28	AC-FT 107800
WTR YR 1980	TOTAL 71769	MEAN 196	MAX 1350	MIN 18	AC-FT 142400

06211000 RED LODGE CREEK ABOVE COONEY RESERVOIR, NEAR BOYD, MT

LOCATION.--Lat 45°26'16", long 109°15'11", in NE¼SE¼SE¼ sec.33, T.4 S., R.20 E., Carbon County, Hydrologic Unit 10070006, on right bank 0.6 mi (1.0 km) upstream from Cooney Reservoir, 9.5 mi (15.3 km) west of Boyd.

DRAINAGE AREA.--143 mi^2 (370 km^2).

PERIOD OF RECORD.--May 1937 to current year (no winter records for most years).

REVISED RECORDS.--WSP 1729: Drainage area. WSP 2116: 1937(M), 1942(M), 1943(P), 1944(M), 1948(M), 1952(M), 1957(P), 1962(M), 1963(M).

GAGE.--Water-stage recorder. Datum of gage is 4,248.0 ft (1,294.79 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records are poor Oct. 1 to July 17 and are good July 18 to Sept. 30. Some return flow from lands irrigated by water diverted from Rock Creek and East Rosebud Creek basins. Diversions for irrigation of about 5,100 acres (20.6 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,260 ft^3/s (64.0 m^3/s) June 15, 1967, gage height, 7.00 ft (2.134 m), from rating curve extended above 1,700 ft^3/s (48.1 m^3/s) on basis of contracted-opening measurement of peak flow; no flow on many days in 1949.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 649 ft^3/s (18.4 m^3/s) May 10, gage height, 3.60 ft (1.097 m); minimum recorded, 12 ft^3/s (0.34 m^3/s) Aug. 7, but have been less during winter period; minimum gage height, 1.17 ft (0.357 m) July 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	20					19	157	160	90	16	50
2	30	20					20	125	150	84	17	46
3	30	21					28	133	141	130	16	45
4	29	22					38	133	133	110	23	45
5	29	23					50	127	130	86	20	46
6	29	25					72	122	127	90	16	50
7	29	27					77	119	130	80	14	53
8	28	29					56	114	122	72	15	63
9	28	30					63	141	102	70	18	70
10	27	30					77	528	102	68	27	61
11	27	30					81	312	107	66	31	70
12	26	25					72	230	100	65	28	83
13	26	27					89	160	94	63	29	79
14	26	31					133	130	107	61	31	87
15	26	31					227	120	160	55	41	83
16	27	31					177	100	250	50	68	85
17	27	29					227	92	220	55	58	72
18	27	26					265	96	170	66	55	58
19	26	20					286	92	160	58	55	65
20	26	17					364	88	150	50	58	63
21	25	15					309	90	147	46	58	63
22	25	14					312	90	150	40	56	60
23	25	15					280	86	140	30	60	58
24	24	17					289	84	130	30	55	58
25	24	19					265	200	120	27	46	58
26	24	16					224	150	110	22	46	55
27	24	14					199	130	100	23	49	53
28	24	15					181	130	86	18	56	49
29	23	16					167	140	80	15	53	50
30	22	17					157	150	74	16	49	49
31	21	---					---	170	---	16	49	---
TOTAL	814	672					4804	4539	3952	1752	1213	1827
MEAN	26.3	22.4					160	146	132	56.5	39.1	60.9
MAX	30	31					364	528	250	130	68	87
MIN	21	14					19	84	74	15	14	45
AC-FT	1610	1330					9530	9000	7840	3480	2410	3620

06211500 WILLOW CREEK NEAR BOYD, MT

LOCATION.--Lat 45°25'20", long 109°13'47", in SW¼SW¼SW¼ sec.2, T.5 S., R.20 E., Carbon County, Hydrologic Unit 10070006, on left bank 0.5 mi (0.8 km) upstream from Cooney Reservoir, 8 mi (13 km) west of Boyd, and at mile 2.1 (3.4 km).

DRAINAGE AREA.--53.3 mi^2 (138.0 km^2).

PERIOD OF RECORD.--June 1937 to current year (no winter records for most years).

REVISED RECORDS.--WSP 1729: Drainage area. WSP 2116: 1957, 1962.

GAGE.--Water-stage recorder. Altitude of gage is 4,260 ft (1,300 m), from topographic map. Prior to Apr. 3, 1948, at site 0.5 mi (0.8 km) downstream at different datum.

REMARKS.--Records fair except those for October and November, which are poor. Diversions for irrigation of about 1,800 acres (7.28 km^2) above station. Some return flow from lands irrigated by water diverted from Rock Creek basin. Several observations of water temperatures were made during the year and are available in files of Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,720 ft^3/s (48.7 m^3/s) June 15, 1967, gage height, 7.08 ft (2.158 m), from rating curve extended above 400 ft^3/s (11.3 m^3/s) on basis of slope-area measurement of peak flow; maximum gage height, 7.24 ft (2.207 m) May 29, 1942 (backwater from Cooney Reservoir), site and datum then in use; no flow May 29, 30, 1969.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s (4.25 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 24	0800	*537	15.2	*4.39	1.338	June 16	1600	232	6.57	3.01	1.030
May 10	1430	462	13.1	4.15	1.265						

Minimum daily discharge, 9.0 ft^3/s (0.25 m^3/s) Nov. 21, but may have been less during winter period.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	17					11	45	54	78	66	56
2	24	17					12	40	53	77	66	52
3	23	17					13	35	50	68	60	53
4	23	18					14	34	49	81	63	56
5	23	19					20	33	53	72	63	52
6	23	20					30	30	58	75	36	87
7	23	20					29	26	65	72	35	82
8	22	19					21	25	65	77	30	88
9	22	19					23	27	57	76	30	56
10	22	19					30	170	51	64	33	56
11	22	19					20	106	54	61	31	86
12	21	19					24	59	49	63	33	89
13	21	21					30	46	47	64	39	102
14	21	24					46	40	45	64	60	100
15	22	24					76	38	100	67	61	72
16	22	24					99	35	175	70	57	71
17	22	18					76	38	148	62	54	64
18	22	14					86	31	96	76	53	70
19	22	12					92	31	96	75	53	68
20	21	10					149	30	102	77	55	62
21	21	9.0					200	29	113	71	60	58
22	21	11					264	33	102	62	60	66
23	21	12					264	34	100	57	52	63
24	20	12					313	32	100	61	51	39
25	20	13					196	68	83	56	46	39
26	20	11					89	48	77	60	49	38
27	20	11					65	37	79	56	57	36
28	20	12					63	37	69	55	50	35
29	19	13					57	42	68	51	52	33
30	19	14					67	47	70	50	53	33
31	18	---					---	61	---	49	58	---
TOTAL	664	488.0					2430	1392	2326	2068	1612	1861
MEAN	21.4	16.3					81.1	44.9	77.5	66.7	55.5	62.0
MAX	24	24					313	170	175	81	70	102
MIN	18	9.0					11	25	45	49	30	33
AC-FT	1320	968					4820	2760	4610	4100	3200	3690

06212500 RED LODGE CREEK BELOW COONEY RESERVOIR, NEAR BOYD, MT

LOCATION (REVISED).--Lat 45°27'00", long 109°11'06", in NE¼NW¼NW¼ sec.31, T.4 S., R.21 E., Carbon County, Hydrologic Unit 10070006, on right bank 400 ft (122 m) upstream from Cottonwood Creek, 1.5 mi (2.4 km) downstream from Cooney Dam, and 6 mi (10 km) west of Boyd.

DRAINAGE AREA.--210 mi^2 (544 km^2).

PERIOD OF RECORD.--September 1937 to current year.

REVISED RECORDS.--WSP 1309: 1942(M), 1944(M). WSP 2116: 1957(M).

GAGE.--Water-stage recorder. Datum of gage is 4,139.12 ft (1,261.604 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for December and January, which are poor. Some return flow from lands irrigated by water diverted from Rock Creek and East Rosebud Creek basins. Flow completely regulated by Cooney Reservoir (station number 06212000). Diversions for irrigation of about 6,900 acres (27.9 km^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--43 years, 102 ft^3/s (2.889 m^3/s), 73,900 acre-ft/yr (91.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,470 ft^3/s (98.3 m^3/s) June 15, 1967, gage height, 10.17 ft (3.100 m); no flow Oct. 6, 7, 1948, Oct. 7, 8, 12, 16, 17, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 433 ft^3/s (12.3 m^3/s) Apr. 26, gage height, 4.12 ft (1.256 m); minimum daily, 7.5 ft^3/s (0.21 m^3/s) Jan. 27 (result of freezeup).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103	58	43	19	9.2	14	71	245	205	130	162	157
2	103	58	43	19	9.6	12	71	245	205	130	151	157
3	103	58	43	19	10	12	77	242	205	132	144	157
4	103	59	30	19	9.5	11	92	242	205	132	144	157
5	103	61	19	19	8.9	11	103	203	205	132	144	157
6	103	61	19	19	8.9	10	114	149	205	132	142	155
7	103	52	19	19	8.9	9.5	116	132	205	146	164	155
8	101	44	19	19	8.9	9.5	116	132	203	193	173	157
9	103	44	19	14	8.9	9.5	116	132	189	213	173	155
10	103	44	19	9.0	8.9	10	153	138	144	225	175	157
11	103	41	19	9.0	8.9	12	171	230	144	210	175	159
12	103	42	19	9.0	8.9	12	171	284	159	184	193	159
13	105	42	19	9.0	8.9	12	175	290	189	184	205	157
14	103	42	19	9.0	8.7	15	184	349	189	184	196	155
15	103	42	19	9.0	8.4	15	205	349	189	177	186	155
16	105	42	19	9.0	8.7	15	217	346	188	126	189	155
17	103	43	19	8.6	8.9	13	235	346	187	130	210	155
18	83	43	19	8.4	8.9	14	227	346	186	128	210	155
19	56	43	19	8.0	8.9	15	242	343	185	128	196	155
20	56	43	19	8.4	8.9	16	298	227	184	110	196	136
21	58	43	19	8.7	9.5	19	364	227	189	97	173	120
22	58	43	19	8.9	10	19	367	208	203	112	162	120
23	58	43	19	8.9	10	17	364	173	222	118	162	112
24	58	43	19	8.9	9.5	16	388	343	220	116	162	103
25	58	43	19	8.6	10	15	415	349	217	108	159	103
26	58	44	19	8.0	9.5	27	424	349	217	101	157	90
27	56	44	19	7.5	11	39	421	279	220	103	157	72
28	58	49	19	8.0	13	54	355	196	217	106	159	72
29	58	49	19	8.0	15	71	268	198	203	144	159	72
30	58	44	19	8.4	---	72	245	198	128	164	157	72
31	58	---	19	8.8	---	69	---	205	---	164	157	---
TOTAL	2584	1407	672	355.1	277.3	665.5	6765	7695	5807	4459	5292	4041
MEAN	83.4	46.9	21.7	11.5	9.56	21.5	226	248	194	144	171	135
MAX	105	61	43	19	15	72	424	349	222	225	210	159
MIN	56	41	19	7.5	8.4	9.5	71	132	128	97	142	72
AC-FT	5130	2790	1330	704	550	1320	13420	15260	11520	8840	10500	8020

CAL YR 1979 TOTAL 39724.0 MEAN 109 MAX 300 MIN 19 AC-FT 78790
WTR YR 1980 TOTAL 40019.9 MEAN 109 MAX 424 MIN 7.5 AC-FT 79380

06214500 YELLOWSTONE RIVER AT BILLINGS, MT

LOCATION.--Lat 45°47'48", long 108°28'12", in NE¼NE¼ sec. 34, T.1 N., R.26 E., Yellowstone County, Hydrologic Unit 10070007, on left bank 30 ft (9.1 m) downstream from bridge on U.S. Highway 87, 1 mi (2 km) northeast of Billings, 10 mi (16 km) upstream from Pryor Creek, and at mile 360.6 (580.2 km).

DRAINAGE AREA.--11,795 mi^2 (30,549 km^2). Area at site used Jan. 10, 1963, to Dec. 2, 1967, 11,783 mi^2 (30,518 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1904 to December 1905 (gage heights only January to March, December 1905), August 1928 to current year. Monthly discharge only for some periods, published in WSP 1309. Published as "near Billings" 1904-5.

REVISED RECORDS.--WDR MT 1968: 1967 (M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,081.36 ft (939.199 m) National Geodetic Vertical Datum of 1929. May 1904 to December 1905, nonrecording gage at bridge 30 ft (9.1 m) upstream at different datum. Aug. 24, 1928, to June 30, 1932, nonrecording gage at bridge 30 ft (9.1 m) upstream at datum 2.0 ft (0.61 m) higher. July 1, 1932, to Oct. 12, 1937, water-stage recorder at old diversion dam 3 mi (5 km) upstream at different datum. Oct. 13, 1937, to Jan. 9, 1963, water-stage recorder at present site at datum 2.0 ft (0.61 m) higher. Jan. 10, 1963, to Dec. 2, 1967, water-stage recorder at city of Billings Water Department intake, 1.8 mi (2.9 km) upstream at datum 3,096.09 ft (943.688 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records good except those for winter period, which are fair. Diversions for irrigation of about 350,000 acres (1,420 km^2) above station.

AVERAGE DISCHARGE.--52 years (1928-80), 7,038 ft^3/s (199.3 m^3/s), 5,099,000 acre-ft/yr (6.29 km^3/yr). The figures published in the 1978 and 1979 reports were in error; the correct figures are: 50 years, 7,040 ft^3/s (199.4 m^3/s), 5,100,000 acre-ft/yr (6.29 km^3/yr); 51 years, 7,040 ft^3/s (199.4 m^3/s), 5,100,000 acre-ft/yr (6.29 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 69,500 ft^3/s (1,970 m^3/s), June 19, 1974, gage height, 14.60 ft (4.450 m); maximum gage height, 14.76 ft (4.499 m) June 16, 1967, present datum, from floodmark; minimum discharge, 430 ft^3/s (12.2 m^3/s) Dec. 12, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 34,700 ft^3/s (983 m^3/s) May 24, gage height, 10.03 ft (3.057 m); minimum daily, 1,100 ft^3/s (31.2 m^3/s) Jan. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2550	3470	2140	2640	1600	3730	3320	12400	17100	15600	4870	3980
2	2550	3450	2550	3260	2000	3680	3230	13700	17300	15800	4770	3930
3	2530	3360	3210	2950	2720	3420	3210	13900	16800	15400	4690	3930
4	2600	3490	3450	2700	2870	2680	3260	13800	16000	16400	4720	3860
5	2590	3660	3170	2770	3010	2600	3360	14600	15100	16400	4500	3930
6	2550	3640	2910	2000	2930	3500	3530	14400	14500	14800	4120	3710
7	2550	3640	2810	1800	2970	4450	3890	15700	14500	13500	3800	3510
8	2600	3580	2760	1400	2850	5310	3840	17000	14300	12700	3800	3530
9	2850	3490	2810	1100	2680	5800	3710	17100	13900	12400	3600	3840
10	2830	3420	2790	1500	2640	5840	3680	18900	15200	12700	3750	3910
11	2930	3400	2660	2200	2600	6040	3890	20600	19000	11900	3710	4050
12	2870	3360	2300	2600	2590	5280	3980	17100	23500	11000	3490	4740
13	2830	3280	2230	2740	2660	3670	3950	14300	26300	10200	3490	6620
14	2790	3190	2180	3470	2330	3880	4090	12600	26300	9520	3680	7630
15	2770	3170	2000	3680	1900	3720	4640	11400	26000	8900	3800	7720
16	3130	3110	1300	3620	1700	3140	5260	10800	26600	8470	4330	7250
17	3360	3090	1400	3510	1500	3070	5470	10900	25200	8010	4470	7010
18	3230	3130	2400	3210	1800	3130	5770	12300	24100	7940	4550	6740
19	3150	3210	3300	2300	2570	3180	6070	13000	25800	7880	4470	6480
20	3190	3320	3360	2000	3230	3170	6890	13700	28500	7750	4570	6770
21	3470	2900	3150	2000	3820	3260	8110	17800	30100	7350	4550	6920
22	3600	2600	3170	2400	4260	3280	9000	25700	31200	6980	4570	6740
23	3510	2500	3170	2700	4120	3150	9420	31700	29300	6680	4400	6560
24	3450	2780	2990	3010	3280	3410	9560	34100	26800	6390	4350	6330
25	3400	2930	2990	3090	3030	3370	10100	33600	23800	6390	4140	6240
26	3400	2870	2970	2530	3050	3010	10900	32300	22000	6530	3890	6050
27	3380	2680	2760	1700	3710	2890	11200	25200	21600	6420	3770	5800
28	3470	2460	2570	1350	5500	2890	11100	21000	20300	5770	3950	5600
29	3730	2400	2260	1300	5050	2950	10900	18800	17200	5470	4050	5470
30	3680	2280	2010	1200	---	3050	11200	17800	15600	5180	4000	5200
31	3600	---	2160	1300	---	3490	---	17600	---	4970	4050	---
TOTAL	95140	93860	81930	74030	84970	114040	186530	563800	643900	305400	128900	164050
MEAN	3069	3129	2643	2388	2930	3679	6218	18190	21460	9852	4158	5468
MAX	3730	3660	3450	3680	5500	6040	11200	34100	31200	16400	4870	7720
MIN	2530	2280	1300	1100	1500	2600	3210	10800	13900	4970	3490	3510
AC-FT	188700	186200	162500	146800	168500	226200	370000	1118000	1277000	605800	255700	325400

CAL YR 1979 TOTAL 2479120 MEAN 6792 MAX 34400 MIN 1300 AC-FT 4917000
WTR YR 1980 TOTAL 2536550 MEAN 6930 MAX 34100 MIN 1100 AC-FT 5031000

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950-58, 1963 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1950 to September 1958, July 1963 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1976 to current year.

REMARKS.--Once-daily water temperatures are available in the District office. Flow affected by ice Nov. 21-23, Dec. 15, 18, Jan. 19, 22.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,210 micromhos Feb. 2, 1951; minimum daily, 111 micromhos June 9, 1973.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,260 mg/L May 18, 1978; minimum daily mean, 1 mg/L on Oct. 27, 30, 1976, Jan. 11, 12, 1978.
SEDIMENT LOAD: Maximum daily, 493,000 tons (447,000 megagrams) May 19, 1978; minimum daily, 11 tons (10 megagrams) Jan. 12, 1978.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily observed, 720 micromhos Jan. 12; minimum daily, 140 micromhos May 24.
SEDIMENT CONCENTRATIONS: Maximum daily mean 2,520 mg/L May 23; minimum daily mean, 6 mg/L Feb. 15.
SEDIMENT LOAD: Maximum daily 216,000 tons (196,000 megagrams) May 23; minimum daily, 31 tons (28 megagrams) Feb. 15.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
OCT											
25...	1130	3450	2	479	8.4	15.0	10.0	3.8	9.8	97	400
NOV											
09...	1000	3490	71	471	8.5	3.0	4.0	3.0	11.6	99	K280
DEC											
27...	1300	2870	0	475	8.2	7.0	2.5	1.6	13.1	106	220
JAN											
28...	1140	1350	1	582	8.2	-23.0	.0	1.6	13.0	99	190
FEB											
26...	1130	2970	1	498	8.2	11.0	2.0	12	11.8	94	36
MAR											
25...	1200	2940	71	483	8.4	2.0	6.0	11	11.4	103	160
MAY											
01...	1050	12600	1	283	7.1	15.0	11.0	50	8.6	86	240
21...	1130	16500	0	211	8.2	24.0	15.0	39	8.0	89	540
28...	1300	21000	1	181	8.2	19.0	12.0	39	8.9	92	--
JUL											
24...	1045	6470	0	293	7.9	26.5	20.5	6.6	8.0	98	170
AUG											
26...	1045	3940	1	391	8.2	16.5	16.0	5.5	8.2	92	290
SEP											
23...	1035	6550	3	356	8.5	14.0	12.5	18	9.0	94	430

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)
OCT										
25...	K11	170	39	43	15	29	1.0	3.7	130	97
NOV										
09...	K38	170	29	43	15	30	1.0	3.6	140	94
DEC										
27...	< 1	170	42	44	15	29	1.0	3.5	130	95
JAN										
28...	30	210	53	54	19	40	1.2	4.3	160	130
FEB										
26...	2800	180	56	44	16	34	1.1	4.0	120	110
MAR										
25...	K20	170	39	43	15	34	1.1	3.7	130	110
MAY										
01...	K170	98	19	26	8.1	16	.7	2.2	79	38
21...	670	71	12	19	5.6	11	.6	2.0	59	28
28...	--	70	8	19	5.4	11	.6	1.6	62	26
JUL										
24...	55	110	16	29	9.1	20	.8	2.9	94	46
AUG										
26...	380	140	18	34	13	24	.9	2.9	120	74
SEP										
23...	290	140	39	31	15	32	1.2	2.8	150	55

DATE	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT										
25...	7.7	.5	12	298	287	.41	2780	.18	.22	.01
NOV										
09...	7.4	.4	13	282	292	.38	2660	.25	.27	.04
DEC										
27...	12	.5	15	301	294	.41	2330	.39	.38	.06
JAN										
28...	10	.6	17	369	373	.50	1350	.58	.52	.16
FEB										
26...	11	.5	15	394	310	.54	3160	.53	--	.07
MAR										
25...	10	.4	10	304	305	.41	2410	.09	.08	.00
MAY										
01...	5.2	.4	13	156	157	.21	5310	.20	.20	.07
21...	3.3	.4	12	119	117	.16	5300	.05	.06	.12
28...	2.6	.2	14	128	118	.17	7260	.14	.19	.01
JUL										
24...	7.2	.4	11	180	186	.24	3140	.00	.27	.00
AUG										
26...	6.3	.5	11	236	238	.32	2510	.00	.00	.00
SEP										
23...	11	.4	12	225	220	.31	3980	.08	.13	.01

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)
OCT 25...	--	.43	--	.44	.27	.02	.02	--	5.8	.2
NOV 09...	.08	.47	--	.51	--	.01	.00	20	--	--
DEC 27...	.06	.78	.71	.84	.77	.01	.00	3.8	--	--
JAN 28...	.16	.36	.36	.52	.52	.05	.02	4.1	--	--
FEB 26...	.07	.46	.34	.53	.41	.05	.02	--	6.0	.1
MAR 25...	.01	.77	.45	.77	.46	.05	.01	17	--	--
MAY 01...	--	1.4	--	1.5	1.7	.20	.02	8.7	--	--
21...	.13	.52	.06	.64	.19	.16	.02	--	3.8	1.2
28...	.20	.61	--	.62	--	.15	.05	--	3.2	.8
JUL 24...	.00	1.6	1.1	1.6	1.1	.07	.04	3.3	--	--
AUG 26...	.01	.69	.32	.69	.33	.04	.00	--	7.0	.0
SEP 23...	.03	.50	.33	.51	.36	.07	.01	3.4	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
OCT 25...	1130	13	13	200	70	0	< 1	20	28	0
DEC 27...	1300	--	--	--	--	--	--	--	--	--
FEB 26...	1130	11	12	200	50	3	< 1	0	0	1
MAR 25...	1200	--	--	--	--	--	--	--	--	--
MAY 21...	1130	7	6	100	30	1	2	100	0	2
28...	1300	7	4	100	30	0	1	0	0	2
AUG 26...	1045	14	12	100	50	3	2	20	10	1
SEP 23...	1035	--	--	--	--	--	--	--	--	--

DATE	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
OCT 25...	< 3	9	0	310	< 10	4	0	20	6	.1
DEC 27...	--	--	--	--	--	--	--	--	--	--
FEB 26...	< 3	21	3	860	20	14	10	30	8	.1
MAR 25...	--	--	--	--	--	--	--	--	--	--
MAY 21...	< 3	200	14	4100	70	120	1	160	50	.1
28...	1	4	3	4200	30	6	0	1200	0	.0
AUG 26...	< 3	15	5	420	10	26	2	20	20	.1
SEP 23...	--	--	--	--	--	--	--	--	--	--

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT 25...	.0	31	2	0	0	0	0	0	< 3
DEC 27...	--	--	--	--	--	0	--	--	--
FEB 26...	.0	3	0	1	1	1	0	110	8
MAR 25...	--	--	--	--	--	1	--	--	--
MAY 21...	.0	160	12	0	0	0	0	80	50
28...	.0	9	5	0	0	0	0	80	20
AUG 26...	.0	6	2	1	0	0	0	100	10
SEP 23...	--	--	--	--	--	0	--	--	--

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB TOTAL (UG/L) (39516)	ALDRIN, TOTAL (UG/L) (39330)	CHLORDANE, TOTAL (UG/L) (39350)	DDD, TOTAL (UG/L) (39360)	DDE, TOTAL (UG/L) (39365)	DDT, TOTAL (UG/L) (39370)	DIAZINON, TOTAL (UG/L) (39570)	DIELDRIN TOTAL (UG/L) (39380)	ENDRIN, TOTAL (UG/L) (39390)	ETHION, TOTAL (UG/L) (39398)	HEPTACHLOR, TOTAL (UG/L) (39410)
NOV 09...	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 26...	1130	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	LINDANE TOTAL (UG/L) (39340)	MALATHION, TOTAL (UG/L) (39530)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TRITHION, TOTAL (UG/L) (39790)	PARATHION, TOTAL (UG/L) (39540)	TOXAPHENE, TOTAL (UG/L) (39400)	TOTAL TRITHION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	SILVEX, TOTAL (UG/L) (39760)
NOV 09...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 26...	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DISSOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DISSOLVED (PCI/L AS SR/ YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90) (80060)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L) (09511)	URANIUM DISSOLVED, EXTRACTION (UG/L) (80020)
MAY 21...	1130	1.8	1.2	< 1.5	< 1.0	2.4	< 1.5	2.3	< 1.4	.07	.60

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	484	469	501	522	696	430	482	270	231	185	330	380
2	499	480	491	500	599	469	491	248	232	171	335	387
3	501	478	489	468	599	---	561	243	232	184	340	390
4	505	475	467	469	483	---	570	228	224	185	340	388
5	510	470	458	490	481	541	620	226	225	180	350	390
6	511	470	478	481	476	550	621	249	242	190	361	378
7	512	---	480	538	477	540	568	223	---	199	352	398
8	508	---	485	540	495	535	564	193	242	203	361	399
9	492	470	481	649	491	492	---	204	238	208	359	392
10	498	471	478	---	490	501	545	260	225	204	370	390
11	492	469	501	719	490	511	548	248	222	210	371	385
12	488	469	474	720	489	507	518	243	160	210	371	388
13	491	470	548	---	480	490	518	244	178	229	388	382
14	494	469	529	470	481	488	512	246	156	230	390	347
15	498	470	462	471	531	495	514	250	152	242	407	310
16	493	466	485	410	530	492	479	263	205	250	403	320
17	508	479	580	458	568	498	468	260	200	---	410	319
18	510	479	544	456	566	499	480	---	172	266	410	329
19	501	474	473	462	501	501	432	254	173	269	398	---
20	502	471	479	465	501	509	455	221	159	264	395	330
21	490	468	479	530	509	504	420	216	168	273	389	317
22	471	465	480	530	510	504	411	171	160	277	387	314
23	470	512	479	493	452	501	342	190	154	301	380	---
24	465	509	480	498	451	501	340	140	157	302	392	316
25	471	510	481	469	480	492	---	144	156	290	393	320
26	473	486	475	482	480	495	309	190	164	280	395	322
27	471	500	476	570	488	510	311	190	169	280	390	329
28	470	500	479	571	488	511	286	241	157	300	---	329
29	468	501	510	677	427	497	287	216	172	300	393	334
30	473	513	510	677	---	496	271	223	191	306	392	335
31	476	---	525	701	---	495	---	228	---	310	400	---
MEAN	490	481	492	534	507	502	462	224	190	243	378	354

WTR YR 1980 MEAN 405 MAX 720 MIN 140

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER- ATURE, WATER (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
25...	1130	10.0	3450	24	224	91
NOV						
09...	1000	4.0	3490	18	170	92
DEC						
27...	1300	2.5	2870	20	155	86
JAN						
28...	1140	.0	1350	4	15	87
FEB						
26...	1130	2.0	2970	43	345	86
MAR						
25...	1200	6.0	2940	36	286	71
MAY						
01...	1050	11.0	12600	233	7930	70
21...	1130	15.0	16500	242	10800	65
28...	1300	12.0	21000	190	10800	65
JUL						
24...	1045	20.5	6470	28	489	73
AUG						
26...	1045	16.0	3940	20	213	95
SEP						
23...	1035	12.5	6550	61	1080	92

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	18	124	30	281	43	248	26	185	40	173	76	765
2	76	523	16	149	34	234	36	317	19	103	105	1040
3	26	178	15	136	50	433	57	454	15	110	104	960
4	17	119	19	179	54	503	35	255	48	372	82	593
5	20	140	52	514	50	428	46	344	31	252	62	435
6	22	151	63	619	36	283	47	254	29	229	48	454
7	20	138	53	521	21	159	17	83	31	249	38	457
8	19	133	43	416	34	253	11	42	50	385	131	1880
9	21	162	34	320	51	387	67	199	32	232	37	579
10	21	160	44	406	84	633	56	227	37	264	55	867
11	13	103	23	211	52	373	18	107	7	49	250	4080
12	14	108	14	127	73	453	11	77	26	182	658	9380
13	19	145	27	239	41	247	23	170	43	309	458	4540
14	19	143	17	146	21	124	24	225	23	145	396	4150
15	18	135	25	214	29	157	60	596	6	31	569	5720
16	20	169	22	185	110	386	117	1140	37	170	528	4480
17	22	200	8	67	74	280	68	644	20	81	127	1050
18	22	192	8	68	78	505	49	425	16	78	82	693
19	17	145	29	251	59	526	24	149	32	222	208	1790
20	15	129	50	448	54	490	53	286	123	1070	190	1630
21	16	150	33	258	23	196	33	178	123	1270	325	2860
22	18	175	27	190	31	265	22	143	190	2190	260	2300
23	15	142	65	439	120	1030	76	554	138	1540	88	748
24	15	140	36	270	45	363	46	374	190	1680	100	921
25	18	165	26	206	41	331	11	92	165	1350	84	764
26	18	165	28	217	32	257	51	348	100	823	40	325
27	14	128	20	145	34	253	48	220	273	2730	105	819
28	15	141	25	166	26	180	27	98	330	4900	171	1330
29	18	181	38	246	33	201	17	60	215	2930	194	1550
30	15	149	66	406	9	49	21	68	---	---	117	963
31	16	156	---	---	12	70	42	147	---	---	85	801
TOTAL	---	4989	---	8040	---	10297	---	8461	---	24119	---	58924
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	168	1510	248	8300	115	5310	59	2490	30	394	13	140
2	213	1860	311	11500	141	6590	54	2300	26	335	15	159
3	148	1280	311	11700	110	4990	55	2290	22	279	19	202
4	91	801	307	11400	86	3720	75	3320	23	293	19	198
5	409	3710	295	11600	70	2850	68	3010	21	255	21	223
6	79	753	221	8590	60	2350	51	2040	24	267	23	230
7	110	1160	231	9790	58	2270	43	1570	38	390	20	190
8	151	1570	285	13100	58	2240	43	1470	32	328	17	162
9	153	1530	340	15700	88	3300	40	1340	27	262	16	166
10	143	1420	810	41300	214	8780	49	1680	29	294	17	179
11	135	1420	1060	59000	200	10300	57	1830	21	210	36	394
12	336	3610	450	20800	277	17600	57	1690	18	170	35	448
13	322	3430	426	16400	395	28000	49	1350	15	141	100	1790
14	106	1170	155	5270	334	23700	37	951	20	199	194	4000
15	97	1220	112	3450	335	23500	60	1440	33	339	168	3500
16	192	2730	84	2450	314	22600	82	1880	34	397	99	1940
17	184	2720	81	2380	287	19500	60	1300	27	326	79	1500
18	182	2840	94	3120	258	16800	32	686	24	295	68	1240
19	335	5490	137	4810	248	17300	33	702	24	290	61	1070
20	388	7220	163	6030	250	19200	36	753	27	333	62	1130
21	672	14700	210	10100	275	22300	35	695	22	270	63	1180
22	740	18000	1470	107000	405	34100	31	584	23	284	54	983
23	346	8800	2520	216000	422	33400	28	505	21	249	57	1010
24	286	7380	880	81000	227	16400	28	483	17	200	39	667
25	330	9000	752	68200	143	9190	290	5000	17	190	34	573
26	402	11800	732	63800	130	7720	27	476	25	263	33	539
27	396	12000	712	48400	97	5660	29	503	13	132	30	470
28	272	8150	321	18200	94	5150	30	467	11	117	21	318
29	260	7650	162	8220	85	3950	31	458	14	153	22	325
30	208	6290	214	10300	70	2950	30	420	14	151	19	267
31	---	---	190	9030	---	---	25	335	17	186	---	---
TOTAL	---	151214	---	906940	---	381720	---	44018	---	7992	---	25193

TOTAL LOAD FOR YEAR: 1631907 TONS.

06214500 YELLOWSTONE RIVER AT BILLINGS MT--Continued

PERIPHYTON ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS) (70950)
AUG							
26...	1045	33	7.40	5.35	24.4	6.36	84.0

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO MAY 1980

DATE	NOV 9,79	MAR 25,80	MAY 21,80
TIME	1000	1200	1130
TOTAL CELLS/ML	410	3200	810
DIVERSITY: DIVISION	0.3	0.3	0.9
.CLASS	0.3	0.3	0.9
..ORDER	0.7	0.4	1.4
...FAMILY	2.8	2.7	2.7
....GENUS	2.8	2.9	2.7

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	24	1	--	-
....CHLORELLA	--	-	150	4	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	26	6	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	24	1	13	2
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	26	6	--	-	100	13
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	13	3	97	3	--	-
....RHOICOSPHENIA	13	3	24	1	--	-
...CYMBELLACEAE						
....CYMBELLA	--	-	460	14	39	5
....EPITHEMIA	--	-	97	3	--	-
...DIATOMACEAE						
....DIATOMA	100#	25	700#	22	39	5
...FRAGILARIACEAE						
....SYNEDRA	39	9	730#	22	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	26	6	680#	21	39	5
...NAVICULACEAE						
....NAVICULA	77#	19	120	4	130#	16
...NITZSCHIACEAE						
....NITZSCHIA	90#	22	97	3	230#	29
...SURIRELLACEAE						
....SURIRELLA	--	-	48	1	39	5
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	180#	22

06214500 YELLOWSTONE RIVER AT BILLINGS, MT--Continued

PHYTOPLANKTON ANALYSES, JULY 1980 TO SEPTEMBER 1980

DATE	JUL 24,80	AUG 26,80	SEP 23,80
TIME	1045	1045	1035
TOTAL CELLS/ML	500	460	1900
DIVERSITY: DIVISION	0.0	0.8	1.6
.CLASS	0.0	0.8	1.6
..ORDER	0.6	1.1	1.8
...FAMILY	2.3	2.8	2.6
....GENUS	2.3	2.8	3.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....DICTYOSPHAERIUM	--	-	--	-	65	3
....WESTELLA	--	-	--	-	52	3
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	26	6	410#	22
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	26	6	13	1
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	13	3	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	78#	15	13	3	39	2
....MELOSIRA	--	-	--	-	26	1
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	13	3	13	3	--	-
....COCCONEIS	--	-	13	3	26	1
....RHOICOSPHENIA	--	-	--	-	13	1
...CYMBELLACEAE						
....CYMBELLA	120#	23	150#	33	77	4
....EPITHEMIA	--	-	--	-	52	3
...DIATOMACEAE						
....DIATOMA	--	-	--	-	26	1
...FRAGILARIACEAE						
....SYNEDRA	120#	23	--	-	13	1
...GOMPHONEMATACEAE						
....GOMPHONEMA	13	3	39	8	26	1
...NAVICULACEAE						
....NAVICULA	160#	31	100#	22	180	9
...NITZSCHIACEAE						
....NITZSCHIA	--	-	52	11	77	4
...SURIRELLACEAE						
....SURIRELLA	13	3	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	720#	38
....PHORMIDIUM	--	-	--	-	90	5
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	13	3	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06216000 PRYOR CREEK AT PRYOR, MT

LOCATION.--Lat 45°26'06", long 108°32'01", in NE¼NW¼NE¼ sec.5, T.5 S., R.26 E., Big Horn County, Hydrologic Unit 10070008, on left bank at Pryor, 1.4 mi (2.3 km), revised, downstream from Lost Creek, and at mile 82.7 (133.1 km).

DRAINAGE AREA.--117 mi^2 (303 km^2).

PERIOD OF RECORD.--June 1921 to September 1924 (no winter records), October 1966 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,007.35 ft (1,221.440 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 14, 1966, nonrecording gage at approximately same site at different datum.

REMARKS.--Records good. Diversions for irrigation of about 1,100 acres (4.45 km^2) above station.

AVERAGE DISCHARGE.--14 years (water years 1967-80), 41.8 ft^3/s (1.184 m^3/s), 30,280 acre-ft/yr (37.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,280 ft^3/s (64.6 m^3/s) May 19, 1978, gage height, 8.88 ft (2.707 m), from floodmark, from rating curve extended above 410 ft^3/s (11.6 m^3/s) on basis of contracted-opening measurement of peak flow; minimum observed, 3.4 ft^3/s (0.10 m^3/s) June 24, 1921, gage height, 0.86 ft (0.262 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 94 ft^3/s (2.66 m^3/s) Feb. 27, gage height, 3.72 ft (1.134 m); minimum, 11 ft^3/s (0.31 m^3/s) July 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	37	35	34	33	35	37	34	26	19	13	23
2	34	37	36	35	34	37	37	34	25	19	13	22
3	35	36	37	35	34	36	38	29	24	19	13	22
4	35	37	37	34	35	36	41	27	24	18	13	22
5	35	38	36	34	34	37	47	26	25	17	13	22
6	35	36	36	34	34	35	48	25	25	17	13	22
7	35	38	36	32	34	34	51	24	28	17	13	22
8	35	37	36	33	33	34	43	24	27	16	13	24
9	36	37	36	33	33	34	45	24	24	17	15	24
10	37	37	36	33	33	36	53	27	23	16	14	18
11	38	38	36	34	32	40	52	28	22	15	14	18
12	38	36	36	36	33	43	47	25	23	15	17	19
13	38	36	36	39	33	37	45	26	23	15	19	19
14	38	36	36	39	34	38	46	25	22	15	20	19
15	38	36	35	37	32	41	47	28	28	15	20	20
16	47	36	37	36	32	35	44	29	29	12	21	21
17	39	37	39	35	33	34	41	29	24	13	21	22
18	39	35	38	35	34	35	41	31	24	14	20	22
19	37	36	37	31	43	35	40	31	26	13	20	26
20	37	35	36	35	65	35	39	30	24	12	20	26
21	38	34	36	36	54	34	38	30	29	13	20	26
22	37	35	36	34	47	34	37	28	26	12	20	26
23	37	36	36	35	38	34	36	26	24	13	21	28
24	37	36	34	35	37	35	35	27	24	13	20	28
25	36	36	34	35	35	36	35	34	24	13	19	29
26	36	35	34	34	45	34	34	31	24	13	20	23
27	36	35	34	33	67	35	34	29	20	12	22	24
28	37	34	34	32	49	36	34	28	19	13	23	27
29	41	34	34	33	37	36	34	28	18	13	24	27
30	39	35	34	33	---	37	34	26	18	13	24	27
31	37	---	34	33	---	39	---	25	---	13	24	---
TOTAL	1151	1081	1107	1067	1117	1117	1233	868	722	455	562	698
MEAN	37.1	36.0	35.7	34.4	38.5	36.0	41.1	28.0	24.1	14.7	18.1	23.3
MAX	47	38	39	39	67	43	53	34	29	19	24	29
MIN	34	34	34	31	32	34	34	24	18	12	13	18
AC-FT	2280	2140	2200	2120	2220	2220	2450	1720	1430	902	1110	1380

CAL YR 1979 TOTAL 15440 MEAN 42.3 MAX 141 MIN 19 AC-FT 30630
WTR YR 1980 TOTAL 11178 MEAN 30.5 MAX 67 MIN 12 AC-FT 22170

06216900 PRYOR CREEK NEAR HUNTLEY, MT

LOCATION (REVISED).--Lat 45°49'19", long 108°17'23", in NE¼SE¼NW¼ sec.19, T.1 N., R.28 E., Yellowstone County, Hydrologic Unit 10070008, on left bank 250 ft (76 m) upstream from county bridge on Indian Creek road, 1.9 mi (3.1 km) downstream from Indian Creek, 4.9 mi (7.9 km) south of Huntley, and 11.2 mi (18.0 km) upstream from mouth.

DRAINAGE AREA.--582 mi^2 (1,507 km^2).

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,140 ft (957 m), from topographic map.

REMARKS.--Records good except those for winter period, which are poor. Diversions for irrigation of about 3,200 acres (13.0 km^2) above station. Several observations of water temperature and specific conductance were made during the year and are available in files of Helena district office.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, undetermined, but probably occurred on Mar. 12, 1979; maximum gage height, 7.54 ft (2.298 m) Mar. 12, 1979 (ice jam); minimum discharge, 2.1 ft^3/s (0.059 m^3/s) Aug. 1, 1980, gage height, 0.25 ft (0.076 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 19, 1978, reached a discharge of 18,200 ft^3/s (515 m^3/s) from slope-area measurement of peak flow at site 4.5 mi (7.2 km) downstream. Floodmarks at this site not recovered.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined, probably occurred on Feb. 29; maximum gage height, unknown, occurred Mar. 4 (ice jam); minimum discharge, 2.1 ft^3/s (0.059 m^3/s) Aug. 1, gage height, 0.25 ft (0.076 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	67	64	84	54	200	111	77	92	28	3.3	22
2	45	65	70	84	57	170	145	83	71	23	4.3	25
3	45	65	79	84	56	160	181	79	67	25	6.8	25
4	47	65	88	80	56	140	167	101	63	19	8.8	21
5	48	67	88	70	54	110	171	114	58	18	8.3	18
6	48	67	88	60	54	84	181	85	58	20	8.3	17
7	48	69	79	55	54	100	164	79	65	22	6.4	16
8	47	69	74	50	54	110	154	73	69	16	5.6	17
9	47	71	70	40	54	100	136	71	69	17	5.6	20
10	48	69	75	40	54	120	148	90	63	11	6.4	23
11	53	70	68	47	52	160	171	184	56	11	7.2	26
12	53	70	70	56	50	250	145	128	56	11	7.7	24
13	53	73	72	58	50	230	130	94	53	13	8.8	24
14	56	73	74	56	47	170	114	81	53	14	12	25
15	56	69	74	54	46	230	114	73	58	12	15	24
16	58	69	52	52	46	200	125	67	67	13	18	24
17	62	67	70	50	47	125	119	58	87	10	18	28
18	71	69	80	50	60	117	106	67	67	7.2	19	28
19	65	67	86	50	100	119	99	67	56	10	18	33
20	62	67	88	50	95	117	99	65	61	12	19	37
21	63	62	88	53	95	105	99	60	58	13	19	38
22	62	62	85	56	90	104	97	56	50	11	17	39
23	63	70	74	58	90	94	94	56	50	10	17	39
24	63	70	76	58	95	97	92	55	42	10	17	39
25	63	70	78	56	130	99	90	79	35	7.2	23	44
26	63	68	78	54	200	92	87	111	35	8.3	23	45
27	62	64	80	52	300	109	85	97	38	11	19	47
28	62	60	80	48	500	136	81	77	35	11	17	44
29	63	60	80	45	600	130	75	71	33	8.3	19	39
30	67	64	82	46	---	112	75	77	29	8.8	22	42
31	71	---	85	50	---	109	---	97	---	7.7	24	---
TOTAL	1759	2018	2395	1746	3240	4199	3655	2572	1694	418.5	423.5	893
MEAN	56.7	67.3	77.3	56.3	112	135	122	83.0	56.5	13.5	13.7	29.8
MAX	71	73	88	84	600	250	181	184	92	28	24	47
MIN	45	60	52	40	46	84	75	55	29	7.2	3.3	16
AC-FT	3490	4000	4750	3460	6430	8330	7250	5100	3360	830	840	1770

CAL YR 1979 TOTAL 45716.0 MEAN 125 MAX 2000 MIN 36 AC-FT 90680
WTR YR 1980 TOTAL 25013.0 MEAN 68.3 MAX 600 MIN 3.3 AC-FT 49610

06217500 YELLOWSTONE RIVER AT HUNTLEY, MT

LOCATION.--Lat 46°54'15", long 108°19'01", in N½SW¼ sec.24, T.2 N., R.27 E., Yellowstone County, Hydrologic Unit 10070007, at bridge on State Highway 312, 0.1 mi (0.2 km) downstream from Twelve Mile Creek, and 0.7 m (1.1 km) northwest of Huntley.

DRAINAGE AREA.--12,840 mi^2 (33,256 km^2).

PERIOD OF RECORD.--Water years 1951-52, 1971, 1972 to current year.

REMARKS.--Records of discharge are estimated from Yellowstone River at Billings (station 06214500). Flow affected by diversions for irrigation upstream from station.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
OCT 16...	1015	3130	1	538	8.2	9.0	13.5	8.9	93	--	12000	14000
NOV 28...	0815	2460	0	560	8.3	-9.0	.5	12.8	96	18	16000	3700
DEC 27...	0745	2760	0	570	8.1	-5.0	1.0	11.7	90	46	K46000	--
JAN 31...	0745	1300	0	820	7.9	-14.0	.5	11.4	87	9	K17000	K2400
FEB 26...	1015	3050	1	532	8.2	8.0	3.0	12.3	101	28	150	K170
MAR 27...	0900	2890	1	570	8.7	5.0	5.5	11.1	98	23	--	--
APR 29...	1045	10900	1	295	8.2	20.5	14.0	8.2	89	22	940	270
JUN 03...	1030	16800	1	260	8.2	21.0	13.5	8.6	92	23	4800	K150
26...	1145	22000	0	168	8.0	22.0	17.0	8.1	93	9	1700	K180
JUL 31...	1120	4970	0	323	8.6	25.5	23.0	7.9	102	9	530	500
AUG 27...	1015	3770	0	465	8.6	19.0	18.0	8.5	99	15	3700	250
SEP 24...	1000	6330	1	358	8.2	15.0	12.0	8.6	88	35	2500	570

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
OCT 16...	200	51	49	19	41	1.3	4.0	150	140	4.3	.5	12
NOV 28...	210	50	51	20	36	1.1	4.2	160	130	11	.6	16
DEC 27...	180	85	46	17	38	1.2	3.5	100	150	10	.3	14
JAN 31...	290	93	71	28	57	1.5	4.6	200	200	11	.6	16
FEB 26...	180	62	45	17	41	1.3	4.3	120	130	10	.5	15
MAR 27...	190	52	47	18	44	1.4	3.9	140	130	10	.5	9.9
APR 29...	110	17	28	8.7	17	.7	2.2	89	41	4.0	.3	14
JUN 03...	84	9	22	7.1	13	.6	1.8	75	31	3.2	.3	13
26...	64	11	17	5.2	8.9	.5	1.4	53	21	2.2	.2	11
JUL 31...	110	19	28	10	21	.9	2.8	92	59	5.5	.4	12
AUG 27...	150	20	37	14	28	1.0	3.1	130	81	7.2	.5	10
SEP 24...	130	22	33	12	21	.8	2.7	110	60	5.6	.4	13

[illegible] YELLOWSTONE RIVER AT [illegible], MT--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, ORTHOPHO-SPHATE TOTAL (MG/L AS P) (70507)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 16...	360	.49	3040	.28	.08	.61	.60	--	[illegible]	--	[illegible]	[illegible]
NOV 28...	365	.50	2920	.37	.11	.50	.61	--	[illegible]	--	[illegible]	[illegible]
DEC 27...	339	.46	2530	.30	.11	.55	.66	--	[illegible]	--	[illegible]	< 10
JAN 31...	509	.69	1790	.72	.38	.09	.97	--	[illegible]	--	[illegible]	[illegible]
FEB 26...	335	.46	2760	.45	.14	.00	.18	--	[illegible]	--	[illegible]	[illegible]
MAR 27...	348	.47	2720	.10	.12	.51	.63	--	[illegible]	--	[illegible]	[illegible]
APR 29...	169	.23	4970	.17	.06	.94	1.0	--	[illegible]	--	[illegible]	[illegible]
JUN 03...	137	.19	6210	.13	.03	--	--	.60	[illegible]	--	[illegible]	[illegible]
26...	99	.13	5880	.09	.04	.42	.46	--	[illegible]	--	[illegible]	[illegible]
JUL 31...	194	.26	2600	.10	.03	.64	.67	--	[illegible]	--	[illegible]	[illegible]
AUG 27...	259	.35	2640	.35	.02	.48	.50	--	[illegible]	--	[illegible]	< 10
SEP 24...	214	.29	3660	.12	.00	.90	.90	--	[illegible]	.01	[illegible]	[illegible]

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)
NOV 28...	0815	--	--	--	--	--	--	--	--
DEC 27...	0745	--	--	--	--	--	--	--	--
JAN 31...	0745	10	10	--	< 1	0	< 1	0	0
FEB 26...	1015	--	--	--	--	--	--	--	--
MAR 27...	0900	--	--	--	--	--	--	--	--
APR 29...	1005	--	--	--	--	--	--	--	--
JUN 03...	1030	7	6	0	< 1	0	< 1	0	0
26...	1145	--	--	--	--	--	--	--	--
JUL 31...	1120	12	13	0	< 1	0	< 1	10	4
AUG 27...	1015	--	--	--	--	--	--	--	--
SEP 24...	1000	--	--	--	--	--	--	--	--

06217500 YELLOWSTONE RIVER AT HUNTLEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
NOV								
28...	--	--	--	--	--	--	--	--
DEC								
27...	--	--	--	--	--	--	--	--
JAN								
31...	6	1	150	2	1	40	40	.1
FEB								
26...	--	--	--	--	--	--	--	--
MAR								
27...	--	--	--	--	--	--	--	--
APR								
29...	--	--	--	--	--	--	--	--
JUN								
03...	15	6	2000	7	0	60	6	.0
26...	--	--	--	--	--	--	--	--
JUL								
31...	8	5	580	5	3	40	10	.0
AUG								
27...	--	--	--	--	--	--	--	--
SEP								
24...	--	--	--	--	--	--	--	--

DATE	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	CYANIDE TOTAL (MG/L AS CN) (00720)
NOV									
28...	--	3	--	--	--	1	160	--	.00
DEC									
27...	--	2	--	--	--	0	30	--	.01
JAN									
31...	.0	--	2	2	2	0	50	10	.01
FEB									
26...	--	--	--	--	--	0	20	--	.00
MAR									
27...	--	10	--	--	--	0	50	--	.01
APR									
29...	--	10	--	--	--	0	90	--	.00
JUN									
03...	.0	5	0	0	0	0	20	9	.00
26...	--	6	--	--	--	0	90	--	.00
JUL									
31...	.0	4	0	0	0	0	10	4	.00
AUG									
27...	--	6	--	--	--	0	20	--	.01
SEP									
24...	--	13	--	--	--	0	--	--	.00

06217500 YELLOWSTONE RIVER AT HUNTLEY, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV						
28...	0815	.5	2460	9	60	--
DEC						
27...	0745	1.0	2760	10	75	--
FEB						
26...	1015	3.0	3050	43	354	--
MAR						
27...	0900	5.5	2890	30	234	91
APR						
29...	1045	14.0	10900	261	7680	60
JUN						
03...	1030	13.5	16800	107	4850	62
26...	1145	17.0	22000	98	5820	72
JUL						
31...	1120	23.0	4970	30	403	81
AUG						
27...	1015	18.0	3770	20	204	95
SEP						
24...	1000	12.0	6330	43	735	92

455936108102200 HUNTLEY PROJECT DRAIN NO. / NEAR WORDEN, MT

LOCATION.--Lat 45°59'36", long 108°10'22", in NW¼NW¼SW¼ sec.19, T.3 N., R.29 E., Yellowstone County, Hydrologic Unit 10070007, at downstream side of bridge on farm road, 0.25 mi (0.04 km) upstream from mouth, and 2.2 mi (3.5 km) northwest of Worden.

PERIOD OF RECORD.--Water years 1977 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
OCT											
16...	0845	3.9	1	770	7.7	8.5	12.0	5.8	59	250	6
NOV											
28...	0950	.98	0	1110	8.0	-1.0	3.0	10.3	82	320	0
DEC											
27...	0920	.78	0	1110	7.9	-8.0	2.0	9.2	73	300	0
JAN											
31...	0935	.37	0	1210	8.0	-9.0	.0	9.6	72	340	0
FEB											
26...	0845	.56	1	1140	7.8	2.0	3.0	8.5	70	310	--
MAR											
27...	1110	.49	1	1120	8.5	9.0	7.5	19.4	179	290	0
APR											
29...	0820	.46	1	1220	8.0	10.5	7.5	10.0	93	320	0
JUN											
03...	1445	2.5	1	950	8.4	22.0	19.5	14.4	175	270	0
26...	0915	6.1	0	458	7.6	19.0	15.0	6.4	70	150	0
JUL											
31...	0920	6.9	0	600	8.1	18.5	18.0	5.4	63	190	0
AUG											
27...	0815	3.7	0	762	7.8	12.0	13.5	5.6	59	210	0
SEP											
24...	0810	2.0	1	950	8.0	8.0	11.0	4.7	47	270	0

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
OCT										
16...	59	24	72	2.0	4.9	240	160	10	.6	18
NOV										
28...	73	33	140	3.4	4.1	360	250	11	.7	24
DEC										
27...	67	32	140	3.5	3.5	360	240	14	.5	23
JAN										
31...	78	36	160	3.8	3.5	370	270	10	.7	22
FEB										
26...	72	32	140	3.5	6.5	--	250	45	.6	19
MAR										
27...	62	32	150	3.9	3.9	320	250	12	.7	18
APR										
29...	71	34	150	3.7	3.3	360	230	12	.7	19
JUN										
03...	60	28	110	2.9	3.4	300	160	9.4	.5	18
26...	39	14	47	1.7	2.7	180	71	5.8	.4	13
JUL										
31...	45	18	56	1.8	4.0	200	110	8.1	.7	16
AUG										
27...	51	21	70	2.1	3.7	240	120	9.2	.6	17
SEP										
24...	61	29	110	2.9	4.2	320	170	11	.7	24

455936108102200 HUNTLEY PROJECT DRAIN NO 7 NEAR WORDEN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHOPH OSPHATE DISSOL. (MG/L AS P) (00671)
OCT										
16...	502	497	.68	5.29	.96	.03	.84	.87	.03	.05
NOV										
28...	718	762	.98	1.90	2.3	.11	.87	.98	.05	.05
DEC										
27...	749	747	1.02	1.58	2.4	.07	1.1	1.2	.02	.04
JAN										
31...	778	814	1.06	.78	2.5	.06	.09	.15	.03	.02
FEB										
26...	741	720	1.01	1.12	2.3	.32	--	--	.06	.03
MAR										
27...	718	728	.98	.95	1.6	.08	.76	.84	.02	.01
APR										
29...	764	743	1.04	.95	1.4	.39	.91	1.3	.05	.04
JUN										
03...	602	604	.82	4.06	.91	.10	.57	.67	.04	.03
26...	278	299	.38	4.58	.23	.45	.65	1.1	--	.00
JUL										
31...	376	381	.51	7.00	.75	.00	4.0	4.0	.09	.06
AUG										
27...	462	443	.63	4.62	1.3	.05	.76	.81	.02	.01
SEP										
24...	649	614	.88	3.50	2.6	.14	.67	.81	.06	.01

06217750 FLY CREEK AT POMPEYS PILLAR, MT

LOCATION.--Lat 45°59'33", long 107°57'07", in SW¼NW¼SE¼ sec.23, T.3 N., R.30 E., Yellowstone County, Hydrologic Unit 10070007, on downstream side of county bridge near right bank at Pompeys Pillar, 300 ft (98 m) downstream of Lost Boy Creek, and 0.5 mi (0.8 km) upstream from mouth.

DRAINAGE AREA.--285 mi^2 (738 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Nonrecording gage. Datum of gage is 2,852.84 ft (869.546 m) National Geodetic Vertical Datum of 1929 (Montana State Highway Commission bridge reference mark). Oct. 1, 1968, to May 1974, nonrecording gage at present site but different datum. May 1974 to July 16, 1978, nonrecording gage at bridge 3 mi (5 km) upstream at different datum.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Flow affected by waste water from irrigation ditches and by return flow from irrigated areas upstream. Discharge for the period May 1974 to July 16, 1978, was computed by combining the flow of Fly Creek, as determined at gage site then in use, and the flow of Lost Boy Creek.

AVERAGE DISCHARGE.--12 years, 39.6 ft^3/s (1.121 m^3/s), 28,690 acre-ft/yr (35.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,300 ft^3/s (292 m^3/s) May 19, 1978, gage height, 15.94 ft (4.859 m), previous site and datum, from floodmark, from rating curve extended above 1,800 ft^3/s (50.9 m^3/s) on basis of slope-area measurement of peak flow; minimum daily, 1.7 ft^3/s (0.048 m^3/s) Dec. 20, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge observed, 129 ft^3/s (3.65 m^3/s) June 16, gage height, 5.47 ft (1.667 m); minimum daily, 3.5 ft^3/s (0.099 m^3/s) Dec. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	8.0	7.2	7.6	5.6	22	7.6	37	76	46	20	64
2	81	8.9	7.6	7.6	5.0	23	7.6	25	80	53	20	63
3	83	9.9	8.0	7.6	5.0	17	12	19	86	44	22	66
4	85	8.9	8.5	6.8	5.7	14	12	25	88	46	21	61
5	83	9.9	6.8	6.8	6.0	10	10	30	86	40	26	70
6	86	11	7.6	7.4	7.2	7.2	7.6	28	80	41	25	59
7	85	9.9	6.0	7.8	7.2	6.8	6.4	36	83	47	23	52
8	92	8.9	7.6	8.2	6.8	7.6	6.8	40	85	31	22	56
9	92	9.9	7.6	8.4	7.6	10	7.2	38	86	24	21	56
10	86	8.9	8.5	8.0	6.8	12	7.2	41	92	14	20	60
11	81	6.8	8.5	7.4	6.4	12	6.8	42	86	18	19	63
12	85	10	8.5	7.0	6.4	11	6.4	53	60	25	18	64
13	88	8.5	8.9	6.8	6.6	12	6.0	49	51	27	16	66
14	85	8.0	8.5	6.8	6.6	12	7.2	47	52	27	25	72
15	81	8.9	3.5	6.4	6.2	11	6.8	42	95	37	35	83
16	81	8.9	6.4	6.4	6.8	14	5.7	38	106	39	43	76
17	85	8.0	7.6	7.2	6.8	11	6.0	30	95	34	54	64
18	57	9.9	8.5	7.2	6.4	9.9	6.8	30	81	30	61	67
19	22	8.5	6.8	8.0	6.0	7.2	6.4	36	80	43	53	72
20	18	8.5	8.5	6.8	38	6.4	6.8	29	86	44	49	101
21	16	10	8.0	7.2	69	10	6.4	27	72	51	51	80
22	17	9.9	8.5	6.8	48	8.0	6.0	28	73	38	46	73
23	16	9.4	8.0	6.8	51	7.6	7.6	34	65	28	42	69
24	16	7.2	8.5	6.4	36	8.0	35	52	88	31	46	60
25	17	8.0	8.5	7.6	29	8.0	43	47	72	28	38	57
26	8.9	8.9	8.0	6.4	21	7.2	46	43	64	21	39	57
27	8.5	9.4	8.0	4.7	23	7.6	46	69	67	21	37	24
28	9.4	9.9	7.6	4.4	18	8.9	30	52	66	18	46	13
29	11	7.6	7.6	3.9	22	8.5	22	53	42	20	42	13
30	9.9	6.8	6.4	5.0	---	7.2	21	56	43	21	63	13
31	11	---	6.8	4.9	---	7.6	---	61	---	22	64	---
TOTAL	1676.7	267.3	237.0	210.3	476.1	324.7	412.3	1237	2286	1009	1107	1794
MEAN	54.1	8.91	7.65	6.78	16.4	10.5	13.7	39.9	76.2	32.5	35.7	59.8
MAX	92	11	8.9	8.4	69	23	46	69	106	53	64	101
MIN	8.5	6.8	3.5	3.9	5.0	6.4	5.7	19	42	14	16	13
AC-FT	3330	530	470	417	944	644	818	2450	4530	2000	2200	3560

CAL YR 1979 TOTAL 25368.3 MEAN 69.5 MAX 1720 MIN 3.5 AC-FT 50320
WTR YR 1980 TOTAL 11037.4 MEAN 30.2 MAX 106 MIN 3.5 AC-FT 21890

06217750 FLY CREEK AT POMPEYS PILLAR, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.

REMARKS.--Once-daily water temperatures are available in the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,250 micromhos Apr. 6, 1977; minimum daily, 262 micromhos Feb. 14, 1971.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily observed, 3,840 micromhos Feb. 20; minimum daily, 619 micromhos June 25.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
OCT									
18...	1430	55	1	952	--	17.0	12.0	320	120
NOV									
27...	1130	9.3	3	2750	--	-2.5	1.0	910	520
JAN									
05...	1130	7.7	3	3280	--	1.0	1.0	930	520
22...	1200	7.4	13	3100	--	1.0	1.0	1000	620
FEB									
18...	1000	6.6	52	2900	8.1	1.5	2.0	930	570
MAR									
17...	1045	11	1	3390	8.2	6.0	3.0	880	540
APR									
18...	1330	6.9	2	3450	8.3	27.0	14.0	980	600
MAY									
19...	1030	35	13	1320	8.0	23.5	14.0	400	210
JUN									
16...	1200	118	1	1090	7.8	27.5	17.5	270	170
JUL									
07...	1045	49	1	887	8.0	31.0	19.0	270	87
25...	1330	29	0	1310	8.0	31.0	19.0	380	140
AUG									
14...	1000	24	1	1570	8.2	24.0	16.0	510	230
SEP									
15...	1030	87	63	780	8.0	11.5	15.0	240	71

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
OCT									
18...	64	37	95	2.3	5.0	200	310	11	.5
NOV									
27...	110	130	390	5.6	6.7	390	1300	20	.7
JAN									
05...	160	160	450	6.4	5.6	410	1600	30	.5
22...	160	150	420	5.7	5.6	400	1600	31	.6
FEB									
18...	160	130	400	5.7	5.6	360	1600	30	.5
MAR									
17...	160	120	500	7.3	7.6	340	1500	43	.6
APR									
18...	160	140	460	6.6	6.6	380	1500	30	.6
MAY									
19...	75	51	160	3.1	6.1	190	460	10	.3
JUN									
16...	50	31	120	3.0	6.3	100	430	9.3	.4
JUL									
07...	50	32	81	2.3	5.5	190	270	7.0	.3
25...	70	50	160	3.1	5.1	240	400	11	.6
AUG									
14...	90	69	160	3.1	5.0	280	550	12	.6
SEP									
15...	52	27	66	1.9	4.1	170	200	8.0	.5

06217750 FLY CREEK AT POMPEYS PILLAR, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT								
18...	12	661	.90	98.2	.25	.01	--	--
NOV								
27...	28	2270	3.09	57.0	--	.00	480	10
JAN								
05...	16	2440	3.32	50.7	.59	.01	--	--
22...	16	2430	3.30	48.6	.63	.01	--	--
FEB								
18...	19	2360	3.21	42.1	.55	.09	--	--
MAR								
17...	9.9	2540	3.45	75.4	.18	.03	--	--
APR								
18...	11	2540	3.45	47.3	.18	.01	--	--
MAY								
19...	13	868	1.18	82.0	.16	.04	--	--
JUN								
16...	9.5	734	1.00	234	.20	.04	--	--
JUL								
07...	11	574	.78	75.9	.21	.03	--	--
25...	14	878	1.19	68.7	.32	.03	--	--
AUG								
14...	14	1070	1.46	69.3	.28	.04	--	--
SEP								
15...	13	474	.64	111	.19	.02	--	--

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	891	2700	2970	2620	3000	---	3100	1160	77	973	1530	850
2	860	2660	2760	2720	2900	---	3080	1610	77	1000	1440	800
3	829	2540	2190	2610	2630	---	3210	1650	83	956	1380	750
4	942	2610	2870	2270	2860	---	3400	1350	80	1050	1410	785
5	1040	2700	2830	2440	2900	---	3410	1350	79	965	1240	730
6	829	2740	2860	---	2540	2700	3400	1460	74	821	---	730
7	997	2380	2720	---	3180	2880	3400	1400	72	1000	1450	990
8	763	2600	2900	---	3190	3040	3330	1140	66	1220	1440	950
9	843	2400	2350	---	3200	2812	3010	1280	67	1180	1470	988
10	942	2650	2800	---	2980	2820	3000	1040	77	1500	1550	825
11	832	2530	2750	---	2750	2880	3060	1140	96	1360	1550	881
12	919	2770	2680	---	3100	3110	2960	1020	97	1250	1730	837
13	956	2620	2290	---	---	3270	3270	807	98	1110	1740	652
14	879	2790	3130	2020	---	3220	3210	829	100	1080	1340	771
15	864	2370	[illegible]	[illegible]	---	3170	3300	1080	98	1170	1340	730
16	[illegible]	[illegible]	---	[illegible]	---	[illegible]	[illegible]	[illegible]	[illegible]	1140	1130	750
17	[illegible]	[illegible]	---	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1250	915	790
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1300	920	680
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1120	980	682
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	921	980	675
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	930	950	750
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1100	980	728
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1260	1000	718
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]	[illegible]	[illegible]	1360	950	841
25	[illegible]	---	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1370	980	[illegible]
26	[illegible]	[illegible]	[illegible]	---	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1370	950	[illegible]
27	[illegible]	[illegible]	[illegible]	---	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1540	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	---	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1330
29	[illegible]	[illegible]	[illegible]	---	---	[illegible]	[illegible]	[illegible]	[illegible]	1530	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	---	---	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	---	[illegible]	---	---	[illegible]	---	[illegible]	---	[illegible]	[illegible]	---
MEAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1212	[illegible]	[illegible]

[illegible]

06217950 BUFFALO CREEK NEAR CUSTER, MT

LOCATION.--Lat 46°08'02", long 107°37'47", in NW¼NW¼NW¼ sec.4, T.4 N., R.33 E., Yellowstone County, Hydrologic Unit 10070007, on right bank at upstream side of county bridge, 0.9 mi (1.4 km) upstream from Carson Coulee, 1.8 mi (2.9 km) upstream from mouth, and 3.7 mi (6.0 km) southwest of Custer.
DRAINAGE AREA.--221 mi^2 (572 km^2).

WATER-DISCHARGE RECORDS

PERIOD RECORD.--June 1979 to current year.
GAGE.--Nonrecording gage and crest-stage gage. Altitude of gage is 2,760 ft (841 m), from topographic map.
REMARKS.--Water-discharge records poor.
EXTREMES FOR CURRENT PERIOD.--June to September 1979: Maximum discharge during period, 19 ft^3/s (0.54 m^3/s) July 25, gage height, 1.78 ft (0.543 m); no flow July 17-20.

Water year 1980: Maximum discharge observed, 6.0 ft^3/s (0.17 m^3/s) May 27, gage height, 1.06 ft (0.323 m); no flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, JUNE TO SEPTEMBER 1979

Day	June	July	Aug	Sept	Day	June	July	Aug	Sept	Day	June	July	Aug	Sept
1	1.2	.17	.49	.06	11	.93	.11	.02	.04	21	.38	.02	.03	.02
2	1.2	.11	.35	.03	12	.88	.04	.04	.02	22	.32	.28	.04	.03
3	1.3	.07	.35	.02	13	.79	.01	.04	.03	23	.26	.04	.04	.02
4	1.1	.04	.29	.02	14	.70	.02	.04	.02	24	.61	.04	.04	.03
5	1.0	.02	.23	.04	15	.53	.02	.04	.01	25	.45	3.1	.04	.02
6	1.0	.02	.23	.02	16	.45	.28	.06	.02	26	.35	2.6	.04	.02
7	1.0	.04	.11	.04	17	.45	.00	.06	.02	27	.42	1.3	.07	.01
8	.93	.02	.04	.04	18	.35	.00	.28	.03	28	.49	.70	.09	.01
9	.83	.42	.04	.02	19	.45	.00	.03	.02	29	.42	.57	.07	.02
10	.70	.20	.02	.02	20	.45	.00	.03	.02	30	.35	.29	.06	.02
										31	---	.65	.06	---

	June	July	Aug	Sept
TOTAL	20.29	10.68	3.12	.73
MEAN	.68	.34	.10	.024
MAX	1.3	3.1	.49	.06
MIN	.26	.00	.02	.01
AC-FT	40	21	6.2	1.4

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.20	.75	.60	.25	.27	2.5	.20	1.2	.03	.00	.00
2	.01	.20	.79	.65	.30	.35	1.8	.20	2.4	.03	.00	.00
3	.01	.23	.79	.60	.30	.40	1.6	.17	1.8	.03	.03	.02
4	.02	.23	.70	.55	.30	.35	1.6	.17	1.7	.03	.03	.02
5	.04	.23	.79	.50	.28	.30	1.6	.17	1.6	.09	.02	.02
6	.04	.23	.88	.40	.25	.40	1.6	.11	.61	.02	.00	.02
7	.02	.23	.83	.25	.23	.50	1.6	.11	.45	.02	.00	.00
8	.02	.23	.65	.15	.25	.60	1.6	.11	.49	.02	.00	.00
9	.04	.29	.83	.00	.25	.70	1.1	.11	.26	.01	.00	.00
10	.04	.35	1.2	.23	.25	.75	.98	.11	.20	.00	.00	.00
11	.04	.35	1.0	.20	.23	.75	.88	.09	.14	.00	.00	.00
12	.09	.29	1.0	.35	.25	.80	.61	.09	.11	.00	.00	.00
13	.09	.38	1.0	1.0	.23	.80	.53	.09	.14	.00	.00	.00
14	.09	.29	.95	.95	.20	.80	.53	.07	.20	.00	.00	.00
15	.09	.29	.90	.90	.15	.85	.53	.09	.20	.00	.00	.00
16	.09	.38	.30	.70	.10	.90	.53	.09	.03	.00	.02	.00
17	.09	.38	.45	.50	.15	.95	.57	.09	.20	.00	.02	.00
18	.09	.38	1.4	.50	.20	1.0	.65	.09	.14	.00	.02	.01
19	.09	.33	1.4	.30	.28	1.1	.45	.09	.17	.00	.02	.01
20	.06	.30	1.3	.30	.26	1.2	.49	.06	1.3	.00	.03	.01
21	.09	.40	1.2	.33	.25	1.3	.32	.06	.88	.00	.03	.00
22	.09	.50	1.1	.35	.25	1.4	.29	.06	1.6	.00	.03	.00
23	.09	.60	.90	.35	.25	1.5	.29	.06	1.4	.00	.03	.00
24	.09	.70	1.0	.30	.25	1.6	.35	.09	.83	.00	.03	.01
25	.14	.78	1.1	.25	.25	1.5	.32	.14	.26	.00	.02	.01
26	.10	.73	1.0	.20	.30	1.5	.32	.23	.14	.00	.00	.01
27	.14	.85	.70	.15	.50	.98	.32	5.3	.20	.00	.00	.01
28	.14	.82	.60	.10	.45	.83	.26	3.2	.19	.00	.01	.01
29	.14	.85	.55	.10	.35	.83	.26	1.9	.19	.00	.01	.00
30	.11	.65	.50	.15	---	2.5	.20	1.7	.09	.00	.00	.00
31	.09	---	.50	.20	---	3.5	---	1.2	---	.00	.00	---
TOTAL	2.51	11.38	27.88	12.11	7.05	30.71	24.72	16.25	19.04	.28	.35	.16
MEAN	.081	.38	.90	.39	.24	.99	.82	.52	.63	.009	.011	.005
MAX	.14	.85	1.4	1.0	.50	3.5	2.5	5.3	2.4	.09	.03	.02
MIN	.01	.20	.30	.00	.10	.27	.20	.06	.03	.00	.00	.00
AC-FT	5.0	23	55	24	14	61	49	32	38	.6	.7	.3

WTR YR 1980 TOTAL 152.44 MEAN .42 MAX 5.3 MIN .00 AC-FT 302

06279500 BIGHORN RIVER AT KANE, WY

LOCATION.--Lat 44°45'31", long 108°10'51", in NW¼NE¼SW¼ sec.9, T.55 N., R.94 W., Big Horn County, Hydrologic Unit 10080010, on right bank 180 ft (55 m) upstream from Bighorn Canyon National Recreation Area boundary, 0.5 mi (0.8 km) upstream from normal high-water line of Bighorn Lake at elevation 3,660 ft (1,116 m), 1.3 mi (2.1 km) upstream from Five Springs Creek, and 5.9 mi (9.5 km) south of Kane.

DRAINAGE AREA.--15,765 mi^2 (40,831 km^2). Area at sites used prior to May 17, 1956, 15,846 mi^2 (41,041 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year.

REVISED RECORDS.--WSP 1309: 1929(M). WSP 1509: 1929. WSP 1709: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,660 ft (1,116 m), from topographic map. Aug. 29, 1928, to Apr. 25, 1932, nonrecording gage, and Apr. 25, 1932, to May 16, 1956, water-stage recorder, at site 12.5 mi (20.1 km) downstream at different datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Some regulation by Boysen Reservoir (station number 06258900) since October 1951. Diversions for irrigation of about 376,000 acres (1,522 km^2) above station.

AVERAGE DISCHARGE.--52 years, 2,283 ft^3/s (64.65 m^3/s), 1,654,000 acre-ft/yr (2,039 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,200 ft^3/s (714 m^3/s) June 16, 1935, gage height, 11.10 ft (3.383 m), site and datum then in use; minimum daily, 179 ft^3/s (5.07 m^3/s) July 22, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1923, 14.8 ft (4.51 m) Sept. 30, 1923, site and datum in use during the period April 1932 to May 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,780 ft^3/s (192 m^3/s) May 26, gage height, 4.67 ft (1.423 m); maximum gage height, 5.78 ft (1.762 m) Dec. 3 (backwater from ice); minimum daily discharge, 908 ft^3/s (25.7 m^3/s) Aug. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1200	1410	1280	1230	1250	1690	1930	1080	3390	5590	1640	1740
2	1210	1400	1300	1230	1250	1700	1960	1360	3290	6110	1630	1800
3	1180	1400	1290	1230	1250	1680	2060	1140	3200	5590	1180	1760
4	1180	1510	1280	1230	1250	1680	2060	1150	3070	5830	932	1680
5	1180	1580	1280	1230	1250	1500	2050	1150	3700	6150	932	1600
6	1080	1560	1260	1230	1180	1600	2040	1110	4290	6270	908	1560
7	1080	1520	1230	1230	1210	1780	2030	985	5010	6410	1180	1540
8	1090	1510	1220	1230	1400	1790	1950	1080	4310	6220	1570	1500
9	1080	1500	1210	1230	1490	1790	1870	1170	3870	5990	1660	1460
10	1090	1500	1210	1230	1490	1800	1840	1290	3990	6040	1750	1500
11	1130	1500	1210	1240	1460	1920	1780	1580	4630	5810	1750	1540
12	1170	1480	1220	1240	1400	1800	1750	2120	5260	4920	1740	1860
13	1240	1450	1210	1240	1600	2020	1720	1930	5310	4150	1760	1860
14	1260	1500	1200	1240	1600	2100	1630	1650	4720	3850	1640	2010
15	1220	1500	1200	1240	1600	2130	1570	1380	4310	3210	1680	2010
16	1220	1640	1210	1240	1610	2160	1620	1250	4490	3110	2010	3710
17	1190	1600	1210	1250	1620	2180	1630	1210	4310	2400	3140	3540
18	1290	1370	1200	1250	1620	2160	1500	1270	3640	2300	2750	2600
19	1300	1330	1240	1250	1620	2120	1510	1370	3850	2350	2380	2310
20	1320	1320	1240	1250	1610	2090	1580	1440	3770	1900	2520	2400
21	1350	1310	1240	1240	1620	2240	1570	1540	4650	1750	2320	2360
22	1360	1300	1230	1240	1630	2060	1540	2080	4820	1750	2200	2130
23	1450	1290	1220	1220	1650	2040	1480	4400	4610	1690	1750	2280
24	1610	1260	1220	1220	1640	2090	1480	4720	4190	1640	1660	2300
25	1370	1210	1240	1230	1640	2000	1480	4800	1470	1600	1580	2290
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	---	[illegible]	[illegible]	---	[illegible]	---	[illegible]	---	[illegible]	[illegible]	---
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MEAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MAX	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MIN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
AC-FT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

CAL YR 1979 TOTAL [illegible] MEAN [illegible] MAX [illegible] MIN [illegible] AC-FT [illegible]
WTR YR 1980 TOTAL [illegible] MEAN [illegible] MAX [illegible] MIN [illegible] AC-FT [illegible]

06279500 BIGHORN RIVER AT KANE, WY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, WATER (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	HARD-NESS (MG/L AS CACO3) (00900)
OCT										
04...	1100	1150	1200	8.3	12.0	6	--	9.6	490	370
24...	1130	1340	1150	8.3	9.0	--	--	9.8	590	350
DEC										
13...	1030	E1600	1100	8.2	.0	2	--	--	120	390
28...	1230	1230	1080	9.7	.0	5	--	14.0	K6	360
FEB										
29...	1200	E1000	1050	8.1	.0	290	--	9.4	350	330
APR										
09...	1030	1860	1200	8.1	7.5	3900	--	11.8	210	380
MAY										
08...	1100	1100	1100	8.6	17.0	180	--	13.1	--	310
JUN										
05...	1100	3560	770	8.3	18.0	650	--	7.8	5000	230
30...	1500	5300	730	8.1	21.0	800	--	7.4	K170	230
JUL										
29...	1000	1750	1190	8.2	22.0	1900	--	6.6	K560	280
SEP										
04...	1100	1650	970	8.2	17.0	--	280	8.6	230	310

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)
OCT										
04...	180	100	29	110	2.5	4.0	230	0	190	1.9
24...	160	92	29	120	2.3	4.0	230	0	190	1.8
DEC										
13...	190	110	30	110	2.4	5.0	250	0	200	2.5
28...	160	99	28	110	2.5	4.3	250	0	200	.1
FEB										
29...	150	88	27	120	2.9	5.5	220	0	180	2.8
APR										
09...	190	88	27	110	2.6	4.8	230	0	190	2.9
MAY										
08...	150	76	28	97	2.4	2.5	200	0	160	.8
JUN										
05...	99	66	16	61	1.9	2.5	160	0	130	1.3
30...	99	54	22	52	1.5	3.1	160	0	130	2.0
JUL										
29...	120	74	23	83	2.2	4.4	190	0	160	1.9
SEP										
04...	140	76	28	79	2.0	5.0	210	0	170	2.1

06279500 BIGHORN RIVER AT KANE, WY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)
OCT									
04...	390	16	.6	6.6	766	1.04	2380	.20	.03
24...	350	15	.6	7.3	709	.96	2570	.30	.09
DEC									
13...	390	24	.7	6.5	796	1.08	3440	.25	.01
28...	340	19	.6	7.7	730	.99	2420	1.8	.03
FEB									
29...	360	24	.5	6.5	740	1.01	2000	.34	.14
APR									
09...	370	20	.7	8.9	740	1.01	3720	2.0	.70
MAY									
08...	310	13	.5	5.4	630	.86	1870	.26	.12
JUN									
05...	220	8.9	.5	8.8	470	.64	4520	.39	.58
30...	190	6.8	.6	9.9	410	.56	5870	.32	.12
JUL									
29...	270	12	.5	13	570	.78	2690	.12	.30
SEP									
04...	290	11	.7	8.6	600	.82	2670	.07	.18

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB TOTAL (UG/L) (39516)	PCB, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39333)	CHLOR- DANE, TOTAL (UG/L) (39350)	CHLOR- DANE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)
OCT										
24...	1300	.00	0	.00	.0	.0	0	.00	.0	.00
MAY										
21...	0915	.00	2	.00	.4	.0	0	.00	.1	.00
SEP										
04...	1100	.00	0	.00	.0	.0	0	.00	.1	.00

DATE	DDE, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39368)	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39373)	DI- AZINON, TOTAL (UG/L) (39570)	DI- ELDRIN TOTAL (UG/L) (39380)	DI- ELDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39383)	ENDO- SULFAN, TOTAL (UG/L) (39388)	ENDO- SULFAN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39389)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39393)
OCT										
24...	.0	.00	.0	.00	.00	.1	.00	.0	.00	.0
MAY										
21...	.2	.00	.0	.00	.00	.3	.00	.0	.00	.0
SEP										
04...	.1	.00	.0	.00	.00	.1	.00	.0	.00	.0

DATE	ETHION, TOTAL (UG/L) (39398)	HEPTA- CHLOR, TOTAL (UG/L) (39410)	HEPTA- CHLOR, TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39413)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTA- CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOT- TOM MA- TERIAL (UG/KG) (39343)	MALA- THION, TOTAL (UG/L) (39530)	METH- OXY- CHLOR, TOTAL (UG/L) (39480)	METH- OXY- CHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)
OCT										
24...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0
MAY										
21...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0
SEP										
04...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0

06279500 BIGHORN RIVER AT KANE, WY--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L) (39250)	PARA-THION, TOTAL (UG/L) (39540)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39251)	PER-THANE IN BOTTOM MATERIL (UG/KG) (81886)	PER-THANE TOTAL (UG/L) (39034)	TOX-APHENE, TOTAL (UG/L) (39400)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39403)
OCT 24...	.00	.00	.00	--	.00	.0	.00	.00	0	0
MAY 21...	.00	.00	.00	.0	.00	--	.00	.00	0	0
SEP 04...	.00	.00	.00	.0	.00	.0	.00	.00	0	0

DATE	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39731)	2, 4-DP TOTAL (UG/L) (82183)	2,4-DP IN BOTTOM MATERIL (UG/KG) (34609)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39741)	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39761)
OCT 24...	.00	.08	0	.00	.0	.00	0	.00	.0
MAY 21...	.00	.12	0	.00	.0	.00	0	.00	.0
SEP 04...	.00	--	0	--	.0	--	0	--	.0

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)
OCT 04...	1100	12.0	1150	47	146	--	--	--	--	--
MAR 13...	1240	1.5	2020	728	3970	--	--	--	--	--
APR 09...	1030	7.5	1860	1100	5530	77	95	100	--	--
MAY 08...	1100	17.0	1100	118	350	--	--	--	--	--
JUN 09...	1100	18.0	3560	1300	12500	16	25	83	93	100
20...	1500	21.0	5300	1170	16700	--	--	--	--	--
JUL 29...	1000	22.0	1750	503	2380	--	--	--	--	--
SEP 04...	1100	17.0	1650	174	775	--	--	--	--	--

06285100 SHOSHONE RIVER NEAR LOVELL, WY

LOCATION.--Lat 44°50'20", long 108°26'00", in NW¼NW¼ sec.16, T.56 N., R.96 W., Big Horn County, Hydrologic Unit 10080014, on right bank 30 ft (9 m) upstream from bridge on U.S. Highway 310 and 1.5 mi (2.4 km) west of Lovell.

DRAINAGE AREA.--2,350 mi^2 (6,090 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,850 ft (1,173 m), from topographic map. Prior to Oct. 1, 1976, at datum 1.00 ft (0.305 m) higher.

REMARKS.--Water-discharge records fair except those for December to February, which are poor. Flow regulated by Buffalo Bill Reservoir. Natural flow of stream affected by storage reservoirs, power development, diversions above station for irrigation of about 143,000 acres (579 km^2), of which about 8,000 acres (32.4 km^2) are below station, and return flow from irrigated areas.

AVERAGE DISCHARGE.--14 years, 1,017 ft^3/s (28.80 m^3/s), 736,800 acre-ft/yr (908 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft^3/s (379 m^3/s) July 1, 1967, gage height, 7.48 ft (2.280 m) present datum; maximum gage height, 9.09 ft (2.771 m) Feb. 3, 1972 (backwater from ice) present datum; minimum daily discharge, 27 ft^3/s (0.76 m^3/s) May 31, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,590 ft^3/s (130 m^3/s) May 10, gage height, 4.49 ft (1.369 m); maximum gage height, 6.44 ft (1.963 m) Jan. 10 (backwater from ice); minimum daily discharge, 124 ft^3/s (3.51 m^3/s) May 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	766	455	583	480	590	490	436	202	783	2890	670	808
2	766	487	603	510	510	490	596	279	834	3040	750	791
3	733	547	560	530	540	451	581	216	750	3010	750	647
4	725	603	540	530	540	430	547	230	610	2350	1080	526
5	625	625	547	530	560	440	596	269	533	3030	976	461
6	603	632	581	530	550	460	567	179	513	2660	976	418
7	663	647	581	510	550	480	513	129	480	2440	909	430
8	663	632	547	480	540	500	513	140	455	2770	922	461
9	640	621	558	473	540	500	526	136	436	2000	878	424
10	735	625	560	480	530	487	486	1070	230	2300	878	430
11	806	618	540	500	530	610	725	1280	305	2030	958	936
12	742	603	540	510	530	603	717	800	282	1950	843	777
13	647	596	540	530	520	476	717	448	305	1720	817	766
14	655	567	540	550	500	480	603	412	273	1640	817	825
15	694	560	540	570	480	533	476	842	540	1370	878	886
16	733	526	500	550	460	487	526	554	1610	694	993	2630
17	706	547	480	540	480	442	526	843	758	625	1080	1260
18	663	618	480	520	460	461	567	742	574	694	985	1080
19	377	603	500	510	510	476	959	825	1500	717	909	1000
20	476	596	500	500	530	455	1220	610	1640	825	993	922
21	487	589	500	500	530	455	836	455	1720	1210	990	850
22	448	618	540	520	530	455	725	461	1640	860	866	806
23	368	625	540	520	500	461	742	436	2110	836	773	751
24	360	589	540	540	500	440	625	382	2860	625	759	751
25	547	581	560	580	480	440	581	1270	2660	560	640	758
26	387	560	540	550	480	442	448	1150	2860	610	533	694
27	430	603	520	520	500	442	418	766	3040	694	513	690
28	426	618	500	490	520	442	418	526	3810	766	526	603
29	520	581	600	470	520	436	275	554	3170	725	540	603
30	480	581	480	460	---	442	278	775	2860	686	618	589
31	485	---	470	470	---	436	---	742	---	766	750	---
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MEAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MAX	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MIN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
AC-FT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

CAL YR 1979 TOTAL [illegible] MEAN [illegible] MAX [illegible] MIN [illegible] AC-FT [illegible]
WTR YR 1980 TOTAL [illegible] MEAN [illegible] MAX [illegible] MIN [illegible] AC-FT [illegible]

[illegible] SHOSHONE RIVER NEAR LOVELL, WY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years [illegible] to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October [illegible] to current year.
WATER TEMPERATURES: October [illegible] to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, [illegible] micromhos [illegible]; minimum daily, [illegible] micromhos [illegible].
WATER TEMPERATURES: Maximum, [illegible]°C [illegible]; minimum, 0.0°C on many days during winter period each year.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, [illegible] micromhos [illegible]; minimum daily, [illegible] micromhos [illegible].
WATER TEMPERATURES: Maximum [illegible]°C on several days in July and August; minimum, 0.0°C on many days during November to March.

WATER QUALITY DATA, WATER YEAR OCTOBER [illegible] TO SEPTEMBER [illegible]

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE, WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	HARD-NESS (MG/L AS CACO3)
OCT									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
NOV									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	--	[illegible]
JAN									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	.0	[illegible]	[illegible]	[illegible]	[illegible]
FEB									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	.0	[illegible]	[illegible]	[illegible]	[illegible]
APR									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MAY									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
JUN									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
JUL									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SEP									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)
OCT									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
NOV									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
JAN									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
FEB									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
APR									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MAY									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
JUN									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
JUL									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SEP									
[illegible]...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

06285100 SHOSHONE RIVER NEAR LOVELL, WY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)
OCT								
02...	.5	15	514	.70	1100	.91	.13	.03
30...	.8	15	807	1.10	1030	1.2	.28	.01
DEC								
03...	.7	15	738	1.00	1110	11	--	.01
JAN								
02...	.7	15	745	1.01	1040	1.2	.05	.02
FEB								
20...	.8	13	727	.99	883	1.0	.06	.03
APR								
09...	.7	14	776	1.06	1120	.76	.35	.06
MAY								
05...	.6	15	607	.83	567	1.4	.34	.11
JUN								
05...	.4	12	479	.65	722	.71	.17	.05
30...	.3	15	203	.28	1620	.03	.03	.03
JUL								
29...	.5	13	428	.58	996	.96	.13	.04
SEP								
02...	.5	14	520	.71	1180	.98	.11	.02

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	730	1020	1040	1020	1220	1170	1050	934	754	322	652	718
2	746	982	1040	1030	1150	1180	1070	928	710	307	668	701
3	729	1010	1010	1010	1110	1190	1010	911	685	313	671	724
4	754	995	1030	1020	1120	1160	1040	917	732	301	644	727
5	780	1030	1110	1020	990	1110	1090	880	724	301	657	749
6	803	1040	1040	1030	1100	1100	1120	917	735	322	673	754
7	805	1030	1180	1070	1090	1130	1160	972	780	338	676	757
8	788	1010	1070	1030	1120	1120	1160	952	780	354	679	754
9	769	1020	1050	1250	1140	1140	1100	940	746	401	657	783
10	774	1010	1040	1250	1110	1180	1040	830	851	375	684	769
11	749	1000	1050	1220	1120	1140	930	718	856	364	676	765
12	746	1010	1030	1190	1120	1170	879	779	795	391	690	784
13	814	991	1020	1120	1120	1170	877	855	806	422	706	763
14	808	1000	1000	1120	1150	1140	860	880	843	468	711	716
15	791	1020	1030	1160	1200	1190	1010	880	788	513	722	694
16	791	1030	1030	1190	1240	1160	929	815	713	577	719	677
17	780	1060	1070	1200	1190	1160	935	735	655	636	797	717
18	797	1020	1020	1190	1130	1140	986	792	674	614	700	718
19	978	1040	1030	1200	1090	1160	899	697	576	614	684	698
20	1040	1040	1020	1210	1050	1140	667	732	471	590	700	710
21	1030	1020	1020	1200	1080	1140	644	821	466	560	717	704
22	1020	1020	1040	1150	1090	1140	708	815	461	573	695	692
23	1020	1030	1040	1140	1170	1120	676	801	442	577	690	705
24	1080	1030	1020	1140	1200	1120	699	819	370	609	728	729
25	1000	997	1040	1160	1180	1080	699	788	358	652	728	729
26	1060	1040	1030	1170	1160	1070	684	666	321	652	766	741
27	1020	1020	1020	1320	1060	1110	727	705	304	647	780	764
28	1020	1030	1020	1330	1150	1100	724	733	286	631	811	768
29	1090	1040	1020	1250	1180	1080	836	780	301	647	796	770
30	1200	1030	1080	1260	---	1100	870	768	312	660	784	764
31	1030	---	1040	1250	---	1090	---	762	---	649	735	---
MEAN	888	1020	1040	1160	1130	1140	903	823	610	496	710	735

WTR YR 1980 MEAN 887 MAX 1330 MIN 286

06285100 SHOSHONE RIVER NEAR LOVELL, WY--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	4.0	1.0	.0	.0	.5	3.0	12.0	11.5	16.0	18.0	---
2	13.0	4.0	1.0	.0	.0	.5	5.0	11.0	12.0	16.0	17.0	---
3	10.5	4.5	1.0	.5	.5	2.5	6.0	11.0	13.0	17.0	18.0	---
4	10.5	6.0	4.0	.5	1.0	.0	7.0	13.0	13.5	16.0	12.0	13.0
5	11.5	4.0	4.0	.5	1.0	.5	8.5	11.5	14.0	16.0	14.0	13.0
6	12.0	4.0	2.0	.0	1.0	1.0	9.0	13.0	14.5	16.5	15.0	14.0
7	11.0	4.5	2.0	.0	1.5	.5	3.5	11.5	12.0	17.0	15.0	13.0
8	12.0	4.5	2.0	.0	.0	2.5	4.0	12.5	13.0	17.0	16.0	15.0
9	8.0	4.0	2.0	.0	.5	4.0	5.5	13.0	15.0	17.5	16.0	13.0
10	8.0	4.0	2.0	.0	.5	4.0	6.0	9.5	15.5	18.0	16.0	15.0
11	10.0	4.0	.0	.0	.5	5.5	5.0	6.0	16.0	17.0	16.0	15.0
12	11.5	3.5	.0	.5	.5	4.0	6.0	8.5	16.0	18.0	17.0	15.0
13	12.0	2.0	1.5	.5	.0	1.0	7.0	8.0	15.0	17.0	17.0	15.0
14	11.5	2.5	1.5	.5	.0	4.0	8.5	10.0	15.5	17.0	16.0	14.0
15	11.5	3.0	.0	1.0	.0	6.0	10.5	12.0	14.0	17.0	16.0	15.0
16	11.0	2.5	.0	1.0	.0	4.0	7.0	12.0	15.0	17.0	15.0	10.0
17	10.5	3.0	.0	.0	.0	2.5	9.0	12.0	15.0	17.0	16.0	10.5
18	10.5	5.0	.0	.0	.5	3.5	9.0	11.5	17.0	15.0	17.0	13.0
19	11.0	4.0	.5	.0	1.0	5.0	8.0	12.0	15.5	18.0	14.0	14.0
20	8.0	2.5	.0	.0	1.0	4.5	10.0	13.0	16.0	16.0	14.0	13.0
21	8.0	.0	.5	.0	1.0	5.0	10.5	14.5	16.5	16.0	14.5	13.0
22	7.0	1.0	1.5	.0	1.0	4.5	12.0	15.5	16.0	18.0	15.5	11.0
23	7.5	1.0	2.0	.5	1.0	5.0	11.0	15.5	16.0	18.0	16.0	12.0
24	10.0	1.0	1.5	.5	2.0	5.0	11.0	16.0	16.5	17.0	15.0	12.5
25	10.5	4.0	.0	.0	2.0	4.0	11.0	11.5	16.0	17.0	15.0	10.5
26	9.5	.0	.0	.0	3.0	3.5	10.0	9.0	16.0	17.0	15.0	10.5
27	9.5	.0	.0	.0	6.0	4.0	11.0	10.5	16.0	17.0	15.5	12.0
28	9.0	.0	.0	.0	5.5	5.0	11.0	13.0	15.0	17.0	14.0	12.0
29	7.0	.0	.0	.5	3.0	6.0	12.0	12.5	15.0	18.0	14.5	12.0
30	5.0	.5	.5	.0	---	6.0	13.0	12.0	16.0	17.0	---	12.0
31	4.0	---	.0	.0	---	3.0	---	12.0	---	17.0	---	---
MEAN	10.0	3.0	1.0	.0	1.0	3.5	8.5	12.0	15.0	17.0	15.5	13.0

WTR YR 1980 MEAN 8.0 MAX 18.0 MIN .0

PARTICLE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT									
02...	1430	13.5	793	167	358	--	--	--	73
30...	1005	4.5	471	148	188	--	--	--	93
DEC									
03...	1330	2.0	556	192	288	--	--	--	73
JAN									
02...	1200	.0	516	134	187	--	--	--	55
FEB									
29...	1030	2.5	522	1120	1580	--	--	--	97
APR									
09...	1355	8.0	534	522	753	68	89	100	--
MAY									
05...	1100	15.0	346	340	318	--	--	--	93
JUN									
05...	0830	14.0	558	260	392	--	--	--	87
30...	1030	16.0	2960	764	6110	--	--	--	44
JUL									
22...	1130	20.0	958	212	548	--	--	--	59
29...	1330	20.0	862	158	368	--	--	--	73
SEP									
02...	1050	14.5	838	87	197	--	--	--	86

06286200 SHOSHONE RIVER AT KANE, WY

LOCATION.--Lat 44°51'31", long 108°19'52", in NE¼SE¼SE¼ sec.6, T.56 N., R.95 W., Big Horn County, Hydrologic Unit 10080014, at bridge on county road, 3.4 mi (5.5 km) northeast of Lovell, 6.5 mi (10.5 km) west of Kane, 6.6 mi (10.6 km) upstream from high-water line of Bighorn Lake at elevation 3,640 ft (1,109 m), and 7.8 mi (12.6 km) upstream from former discharge station.

DRAINAGE AREA.--2,989 mi^2 (7,742 km^2), at former discharge station.

PERIOD OF RECORD.--Water years 1976 to current year.

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB TOTAL (UG/L) (39516)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	CHLORDANE, TOTAL (UG/L) (39350)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)
OCT 24...	1345	.00	0	.00	.0	.0	0	.00	.1	.00
MAY 21...	0945	.00	0	.00	.0	.0	0	.00	.0	.00
SEP 04...	1300	.00	0	.00	.0	.0	1	.00	.1	.00

DATE	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DIAZINON, TOTAL (UG/L) (39570)	DIELDRIN TOTAL (UG/L) (39380)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDOSULFAN, TOTAL (UG/L) (39388)	ENDOSULFAN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39389)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)
OCT 24...	.1	.00	.0	.00	.00	.1	.00	.0	.00	.0
MAY 21...	.1	.00	.0	.00	.00	.0	.00	.0	.00	.0
SEP 04...	.2	.00	.0	.00	.00	.0	.00	.0	.00	.0

DATE	ETHION, TOTAL (UG/L) (39398)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)
OCT 24...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0
MAY 21...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0
SEP 04...	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0

DATE	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TRITHION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)	NAPHTHALENES, POLYCHLOR. TOTAL (UG/L) (39250)	PARATHION, TOTAL (UG/L) (39540)	PCN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39251)	PERTHANE IN BOTTOM MATERIL (UG/KG) (81886)	PERTHANE TOTAL (UG/L) (39034)	TOXAPHENE, TOTAL (UG/L) (39400)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)
OCT 24...	.00	.00	.00	--	.00	.0	.00	.00	0	0
MAY 21...	.00	.00	.00	.0	.00	.0	.00	.00	0	0
SEP 04...	.00	.00	.00	.0	.00	.0	.00	.00	0	0

DATE	TOTAL TRITHION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG) (39731)	2, 4-DP TOTAL (UG/L) (82183)	2,4-DP IN BOTTOM MATERIL (UG/KG) (34609)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG) (39741)	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG) (39761)
OCT 24...	.00	.00	0	.01	.0	.00	0	.00	.0
MAY 21...	.00	.01	0	.00	.0	.00	0	.00	.0
SEP 04...	.00	.05	0	.00	.0	.01	0	.00	.0

06286400 BIGHORN LAKE NEAR ST. XAVIER, MT

LOCATION.--Lat 45°18'27", long 107°57'26", in SW1/4 SE1/4 sec.18, T.6 S., R.31 E., Big Horn County, Hydrologic Unit 10080010, in block 13 of Yellowtail Dam on Bighorn River, 1.3 mi (2.1 km) upstream from Grapevine Creek, 15.5 mi (24.9 km) southeast of St. Xavier, and at mile 81.0 (130.3 km).

DRAINAGE AREA.--19,626 mi^2 (50,831 km^2).

PERIOD OF RECORD.--November 1965 to current year (monthend contents only). Prior to October 1969, published as "Yellowtail Reservoir." Records of daily elevations and contents on file in Helena district office.

GAGE.--Water-stage recorder in powerhouse control room. Datum of gage is referenced to National Geodetic Vertical Datum of 1929 (levels by U.S. Water and Power Resources Service).

REMARKS.--Reservoir is formed by thin concrete-arch dam; construction began in 1961; completed in 1967. Storage began Nov. 3, 1965. Usable capacity, 1,356,000 acre-ft (1.67 km^3) between elevation 3,296.50 ft (1,004.773 m), river outlet invert, and 3,657.00 ft (1,114.654 m), top of flood control. Elevation of spillway crest, 3,593.00 ft (1,095.146 m). Normal maximum operating level, 1,097,000 acre-ft (1.35 km^3), elevation, 3,640.00 ft (1,109.472 m). Minimum operating level, 483,400 acre-ft (596 hm^3), elevation, 3,547.00 ft (1,081.126 m). Dead storage, 18,970 acre-ft (23.4 hm^3) below elevation 3,296.50 ft (1,004.773 m). Figures given herein represent usable contents. Water is used for power production, flood control, irrigation, and recreation.

COOPERATION.--Elevations and capacity table furnished by U.S. Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,346,000 acre-ft (1.66 km^3) July 6, 1967 (elevation, 3,656.43 ft or 1,114.480 m); minimum since first filling, 660,700 acre-ft (815 hm^3) Mar. 11, 1970 (elevation 3,584.45 ft or 1,092.540 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,086,000 acre-ft (1.34 km^3) July 14, elevation, 3,639.16 ft (1,109.216 m); minimum, 752,300 acre-ft (928 hm^3) May 8, elevation, 3,600.13 ft (1,097.320 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	3,632.40	977,300	---
Oct. 31	3,634.37	1,009,000	+ 31,700
Nov. 30	3,629.74	1,030,000	+ 21,000
Dec. 31	3,629.74	982,200	- 47,800
CAL YR 1979			+ 48,500
Jan. 31	3,622.59	917,300	- 64,900
Feb. 29	3,615.64	862,400	- 54,900
Mar. 31	3,610.70	824,200	- 38,200
Apr. 30	3,601.17	760,100	- 64,100
May 31	3,614.16	848,600	+ 88,500
June 30	3,633.10	1,017,000	+168,400
July 31	3,635.90	1,048,000	+ 31,000
Aug. 31	3,636.17	1,051,000	+ 3,000
Sept. 30	3,607.06	1,061,000	+ 10,000
WTR YR 1980			+ 83,700

06287000 BIGHORN RIVER NEAR ST. XAVIER, MT

LOCATION.--Lat 45°19'00", long 107°55'05", in NW¼NE¼ sec.16, T.6 S., R.31 E., Big Horn County, Hydrologic Unit 10080015, on right bank 800 ft (244 m) downstream from Yellowtail afterbay dam, 1,500 ft (460 m) downstream from Lime Kiln Creek, 14 mi (23 km) southwest of St. Xavier, and at mile 83.9 (135.0 km).

DRAINAGE AREA.--19,667 mi^2 (50, 938 km^2). Area at site used prior to Apr. 16, 1963, 19,626 mi^2 (50,831 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1934 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,158.38 ft (962.558 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Apr. 16, 1963, and June 13, 1964, to Mar. 31, 1965, water-stage recorder at site 1.2 mi (1.9 km) upstream at different datum. Apr. 1, 1965, to July 31, 1966, water-stage recorder at site 1,300 ft (400 m) downstream at present datum.

REMARKS.--Water-discharge records good. Figures of discharge given herein are sum of river flow and flow of Bighorn Canal. Some regulation by 14 reservoirs in Wyoming with combined capacity of 1,400,000 acre-ft (1,726 hm^2) and complete regulation by Bighorn Lake (see preceding page) since Nov. 3, 1965. Diversions for irrigation of about 375,000 acres (1,520 km^2) above station.

AVERAGE DISCHARGE.--46 years, 3,588 ft^3/s (101.6 m^3/s), 2,600,000 acre-ft/yr (3.21 km^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,400 ft^3/s (1,060 m^3/s) June 16, 1935; minimum observed, 49 ft^3/s (1.39 m^3/s) Mar. 29, 1966, result of discharge measurement (dam closure); minimum daily, 112 ft^3/s (3.17 m^3/s) Apr. 2, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,710 ft^3/s (162 m^3/s) July 16; minimum daily, 699 ft^3/s (19.8 m^3/s) Oct. 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2280	1070	2430	2960	3290	3240	3270	2360	1780	5250	3140	3060
2	2270	1080	2430	2970	3260	3240	3270	2390	1890	5250	3170	3050
3	2270	1100	2910	2960	3270	3240	3270	2400	2030	5240	3170	3050
4	2280	1160	2930	2970	3260	3230	3270	2400	2510	5250	3180	3050
5	2270	1150	2920	2960	3270	3230	3270	2390	3020	4770	3180	3050
6	2270	1120	2920	2970	3290	3230	3290	2370	3000	4440	3170	3040
7	2270	1120	2910	2960	3270	3230	3260	2380	3010	5240	3160	3030
8	2260	1080	2910	2970	3290	3240	3300	2360	3010	5260	3180	3040
9	2260	1120	2910	2960	3270	3230	4250	1820	3050	5260	3160	3040
10	2260	2420	2960	2970	3300	3230	4230	1830	3000	5270	3120	3130
11	2260	2430	2990	2950	3270	3220	4250	1820	3110	5260	3160	3160
12	2240	2470	2990	2950	3270	3230	4260	1850	3040	5280	3150	3070
13	2180	2450	2990	2960	3300	3220	4260	1830	3000	5260	3090	2980
14	2180	2410	2970	2950	3270	3220	4280	1840	2990	5260	3150	2970
15	2180	2470	2990	2960	3270	3220	4280	1840	2980	5280	3130	2940
16	2170	2470	2970	2960	3270	3200	4250	1840	2970	5280	3130	2960
17	2170	2450	2970	2970	3270	3200	4230	1830	2970	5260	3120	3020
18	2170	2460	2970	2970	3270	3200	4190	1820	2980	4930	3120	3770
19	2170	2450	2970	2960	3260	3200	4210	1820	2970	4420	3150	3980
20	2170	2430	2990	2970	3270	3200	4260	1820	2800	4420	3130	3990
21	2170	2450	2970	2960	3260	3200	4370	1840	2980	4400	3120	3990
22	2160	2460	2990	2960	3260	3190	3310	1840	2980	4430	3120	3990
23	2160	2450	2970	2970	3260	3190	2400	1830	2950	4360	3120	3990
24	2160	2460	2970	2970	3240	3190	2400	1850	2910	4340	3100	3990
25	2160	2450	2960	2960	3260	3190	2390	1830	3210	3860	3100	3980
26	924	2450	2990	3310	3240	3190	2390	1820	4100	3860	3090	3990
27	699	2450	2990	3330	3230	3190	2390	1840	4800	3840	3080	3990
28	748	2450	2960	3300	3240	3180	2400	1830	5260	3830	3090	3980
29	1130	2450	2960	3270	3240	3180	2390	1820	5260	3110	3070	3980
30	1280	2450	2970	3270	---	3180	2390	1790	5260	3120	3080	3990
31	1180	---	2970	3300	---	3240	---	1800	---	3110	3070	---
TOTAL	61351	61430	90730	93850	94720	99570	103980	61100	95820	144140	97000	103250
MEAN	1979	2048	2927	3027	3266	3212	3466	1971	3194	4650	3129	3442
MAX	2280	2470	2990	3330	3300	3240	4370	2400	5260	5280	3180	3990
MIN	699	1070	2430	2950	3230	3180	2390	1790	1780	3110	3070	2940
AC-FT	121700	121800	180000	186200	187900	197500	206200	121200	190100	285900	192400	204800

CAL YR 1979 TOTAL 1106741 MEAN 3032 MAX 4650 MIN 699 AC-FT 2195000
WTR YR 1980 TOTAL 1106941 MEAN 3024 MAX 5280 MIN 699 AC-FT 2196000

06287000 BIGHORN RIVER NEAR ST. XAVIER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to current year.

REMARKS.--Once-daily water temperatures are available in the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,180 micromhos on several days during 1966-67; minimum daily, 492 micromhos Aug. 28, 1971.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily observed, 1,080 micromhos on several days during April to May; minimum daily, 795 micromhos Oct. 1.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
OCT 18...	0930	2160	2	879	--	7.5	14.0	270	120	70	24	76
DEC 07...	1000	2900	2	954	--	--	8.5	320	150	80	28	90
JAN 17...	0930	2960	1	987	--	-2.0	3.0	290	120	72	26	81
FEB 18...	1300	3260	2	1050	8.2	4.0	5.0	330	150	84	30	91
MAR 24...	1140	3190	3	1040	8.2	13.0	3.0	340	180	86	31	92
APR 21...	1310	4270	1	1020	8.0	20.0	5.0	--	--	--	--	--
MAY 15...	1230	1510	1	1180	8.1	19.0	5.0	340	150	85	30	88
JUN 20...	1630	2600	1	1090	8.2	28.5	6.0	370	210	92	33	95
JUL 23...	1000	3910	0	1010	8.2	33.0	12.0	340	160	86	31	92
AUG 19...	1130	2770	3	924	8.1	21.0	17.5	290	130	73	27	87
SEP 16...	1200	2720	2	790	8.1	13.0	17.5	260	97	65	23	76

DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT 18...	2.0	4.0	150	270	10	.4	9.7	557	.76	3250	.68	.00
DEC 07...	2.2	4.0	170	320	9.5	.5	10	647	.88	5070	.67	.01
JAN 17...	2.1	4.2	170	270	11	.5	9.9	579	.79	4630	.58	.01
FEB 18...	2.2	4.3	180	330	11	.5	9.7	671	.91	5910	.57	.02
MAR 24...	2.2	4.4	160	340	15	.3	9.8	677	.92	5830	.49	.02
APR 21...	--	4.3	190	320	15	.3	--	--	--	--	.57	.05
MAY 15...	2.1	4.5	190	350	15	.5	8.4	698	.95	2850	.47	.01
JUN 20...	2.2	4.2	160	400	3.3	.5	9.2	735	1.00	5160	.47	.02
JUL 23...	2.2	4.3	180	310	12	.5	8.4	655	.89	6910	.65	.01
AUG 19...	2.2	4.1	160	310	12	.5	8.5	621	.84	4640	.59	.02
SEP 16...	2.1	4.3	160	260	12	.5	11	556	.76	4080	1.9	.04

06287000 BIGHORN RIVER NEAR ST. XAVIER, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	795	974	962	956	967	1010	1020	1060	1020	1000	998	842
2	797	---	961	967	961	1040	1040	1080	1040	1020	998	829
3	800	969	959	960	956	993	1040	1080	1040	1020	990	838
4	814	962	957	961	963	1000	1030	1080	1040	1020	991	829
5	825	969	956	---	972	1010	1020	1080	1040	---	991	825
6	831	970	964	971	986	1020	1020	1070	1040	1020	985	830
7	839	938	970	979	991	1020	1000	1080	1040	1020	980	830
8	840	973	966	984	994	---	1020	1080	1040	1010	970	830
9	843	982	960	988	970	1020	1020	1070	1040	1010	970	833
10	849	972	963	990	963	1020	1020	---	1030	1000	960	831
11	847	960	967	992	981	1020	1080	1080	1030	1010	965	832
12	848	971	960	952	986	1000	1040	1070	1030	1000	960	840
13	848	968	953	951	---	981	1040	1060	---	1010	950	831
14	854	961	954	960	1020	1000	1030	1080	1040	1020	949	838
15	860	956	---	963	1020	978	1040	1080	1030	1000	940	835
16	863	950	960	---	---	985	1020	1080	1040	996	939	831
17	---	---	953	960	1010	1000	1030	1080	1030	992	929	830
18	869	953	947	---	973	991	1020	1080	1030	998	930	830
19	870	960	942	971	973	979	1030	1060	---	991	920	830
20	873	981	951	979	985	992	1030	1080	1030	1000	910	833
21	890	972	959	960	---	1000	1040	1080	1030	1000	911	830
22	906	980	958	956	---	---	1040	1080	1030	1000	900	830
23	914	975	960	952	1020	1020	1060	1070	1040	1000	892	830
24	926	969	956	951	1020	1030	1060	1060	1030	1000	888	830
25	940	974	952	949	1020	1030	1060	1050	1030	990	890	830
26	944	972	953	---	---	1020	1070	1060	1030	990	879	820
27	946	975	955	971	962	1020	1060	1060	1040	999	869	---
28	954	979	960	979	980	1020	1060	1060	1040	1000	870	822
29	969	986	952	990	1010	1030	1060	1060	1020	1010	860	824
30	971	980	951	979	---	1040	1060	1060	1030	1000	860	820
31	973	---	960	989	---	1040	---	1060	---	1000	849	---
MEAN	877	969	957	969	987	1010	1040	1070	1030	1000	932	830

WTR YR 1980 MEAN 973 MAX 1080 MIN 795

06289000 LITTLE BIGHORN RIVER AT STATE LINE, NEAR WYOLA, MT

LOCATION.--Lat 45°00'25", long 107°37'05", in SW¼NW¼ sec.36, T.9 S., R.33 E., Bighorn County, Hydrologic Unit 10080016, on right bank 20 ft (6 m) downstream from county bridge, 0.5 mi (0.8 km) north of Wyoming-Montana State line, 1 mi (2 km) downstream from West Fork, and 13 mi (21 km) southwest of Wyola,and at mile 115.2 (185.4 km).

DRAINAGE AREA.--193 mi^2 (500 km^2).

PERIOD OF RECORD.--March 1939 to current year. Prior to October 1940, published as Little Horn River at State Line, near Wyola.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,350 ft (1,326 m), from topographic map.

REMARKS.--Records good except those for winter period, which are fair. Diversions for irrigation of 163 acres (660,000 m^2) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--41 years, 156 ft^3/s (4.418 m^2/s), 113,000 acre-ft/yr (139 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,730 ft^3/s (77.3 m^3/s) June 3, 1944, gage height, 4.87 ft (1.484 m), from rating curve extended above 1,400 ft^3/s (39.6 m^3/s); maximum gage height recorded, 5.93 ft (1.807 m) June 9,1944 (log jam); minimum discharge, 21 ft^3/s (0.59 m^3/s) Dec. 27, 1954, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 583 ft^3/s (16.5 m^3/s) May 22, gage height, 2.74 ft (0.835 m), only peak above base of 510 ft^3/s (14.4 m^3/s); minimum, 34 ft^3/s (0.96 m^3/s) Jan. 26, 27, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88	77	63	74	63	57	59	213	295	180	112	88
2	89	72	81	73	72	59	59	196	299	174	112	86
3	88	76	79	72	70	59	58	182	302	169	112	99
4	81	78	78	72	66	50	59	188	313	167	112	89
5	76	77	78	72	64	50	61	196	325	162	109	86
6	76	73	79	53	63	58	62	216	332	157	107	83
7	76	72	78	48	62	60	62	238	313	154	107	85
8	77	76	77	43	56	60	59	244	295	152	105	86
9	73	76	76	45	60	60	61	321	295	154	104	86
10	78	74	78	56	61	59	62	317	302	145	104	85
11	76	76	53	64	57	59	63	250	317	142	102	85
12	76	71	57	74	59	60	61	222	310	140	102	89
13	76	71	67	86	60	58	62	202	299	140	104	88
14	76	69	78	71	48	59	65	193	291	138	104	86
15	76	71	70	67	43	59	69	188	313	138	105	86
16	88	71	50	66	50	58	69	193	284	131	116	92
17	79	74	74	66	61	56	69	210	270	131	95	91
18	79	74	78	66	65	58	76	222	264	134	88	86
19	79	74	74	50	63	58	82	231	254	127	92	86
20	79	72	74	50	62	57	96	284	247	127	98	83
21	77	61	73	64	61	57	110	389	241	125	92	89
22	76	66	73	64	60	57	118	456	231	123	89	86
23	78	73	73	66	59	57	121	475	225	121	88	85
24	78	73	73	66	58	57	127	433	216	119	88	85
25	78	73	73	61	58	58	134	411	207	118	88	85
26	77	69	72	37	59	57	131	352	202	118	89	83
27	73	69	68	35	60	57	129	332	196	116	88	82
28	78	63	67	36	60	58	131	321	190	114	89	81
29	73	54	69	40	59	57	142	313	185	114	86	81
30	72	59	69	45	---	59	167	310	182	112	86	79
31	72	---	73	54	---	60	---	302	---	112	89	---
TOTAL	2418	2134	2225	1836	1739	1788	2624	8600	7995	4254	3062	2581
MEAN	78.0	71.1	71.8	59.2	60.0	57.7	87.5	277	267	137	98.8	86.0
MAX	89	78	81	86	72	60	167	475	332	180	116	99
MIN	72	54	50	35	43	50	58	182	182	112	86	79
AC-FT	4800	4230	4410	3640	3450	3550	5200	17060	15860	8440	6070	5120

CAL YR 1979 TOTAL 45015 MEAN 123 MAX 651 MIN 50 AC-FT 89290
WTR YR 1980 TOTAL 41256 MEAN 113 MAX 475 MIN 35 AC-FT 81830

06290500 LITTLE BIGHORN RIVER BELOW PASS CREEK, NEAR WYOLA, MT

LOCATION.--Lat 45°10'38", long 107°23'36", in W½SW¼ sec.35, T.7 S., R.35 E., Big Horn County, Hydrologic Unit 10080016, on right bank 3.5 mi (5.6 km) north of Wyola, 6 mi (10 km) downstream from Pass Creek, and at mile 92.3 (148.5 km).

DRAINAGE AREA.--428 mi^2 (1,109 km^2).

PERIOD OF RECORD.--March 1939 to December 1958, August 1959 to September 1975, October 1976 to current year. Prior to October 1940, published as Little Horn River below Pass Creek, near Wyola.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,600 ft (1,100 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversions for irrigation of about 8,300 acres (33.6 km^2) above station.

AVERAGE DISCHARGE.--39 years, 216 ft^3/s (6.117 m^3/s), 156,500 acre-ft/yr (193 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,010 ft^3/s (277 m^3/s) May 19, 1978, gage height, 10.02 ft (3.054 m), from rating curve extended above 2,800 ft^3/s (79.3 m^3/s) on basis of slope-area measurement of peak flow; minimum, 12 ft^3/s (0.34 m^3/s) Aug. 5, 7, 8, 1961, gage height, 0.89 ft (0.271 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 772 ft^3/s (21.9 m^3/s) May 25; maximum gage height, 4.90 ft (1.494 m) Feb. 27 (backwater from ice); no peak above base of 1,000 ft^3/s (28.3 m^3/s); minimum daily discharge, 60 ft^3/s (1.70 m^3/s) Jan 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	119	120	115	120	160	146	288	459	251	74	92
2	97	115	130	100	140	150	148	316	442	245	77	87
3	101	115	130	100	160	140	150	292	421	245	83	85
4	101	120	129	100	150	120	148	285	403	239	88	92
5	99	124	127	100	130	115	150	288	417	230	79	80
6	99	120	122	100	120	120	168	295	428	222	74	79
7	97	117	122	95	115	130	177	322	438	200	74	79
8	101	119	117	85	110	120	155	340	396	181	76	85
9	108	120	117	75	100	120	146	389	379	185	73	90
10	110	120	119	70	100	170	157	534	383	166	73	83
11	114	122	100	70	100	250	172	473	396	155	74	83
12	110	117	105	110	120	270	177	393	389	155	74	92
13	110	115	115	160	110	160	154	340	379	154	80	90
14	110	114	125	140	90	145	150	322	359	154	90	87
15	110	112	140	130	80	175	177	298	428	150	101	90
16	127	112	90	120	70	150	195	288	487	135	127	94
17	127	117	120	110	80	125	172	298	369	127	125	90
18	124	119	161	100	90	129	161	304	344	129	106	85
19	120	120	161	95	110	131	159	310	337	129	97	90
20	119	122	127	95	115	127	168	328	325	131	97	85
21	127	114	115	120	100	135	190	417	319	129	92	90
22	122	110	112	130	110	137	213	545	310	124	87	97
23	120	120	114	150	110	137	222	604	298	114	85	92
24	119	119	110	130	105	141	230	608	298	106	83	94
25	117	120	108	110	105	135	236	680	288	99	83	99
26	115	120	110	90	140	124	236	530	282	95	88	99
27	115	115	106	70	150	120	224	469	268	92	97	95
28	117	110	110	60	160	120	219	431	253	87	92	94
29	146	105	115	70	160	122	216	417	253	82	88	90
30	129	100	115	80	---	129	233	459	251	76	88	88
31	120	---	115	100	---	146	---	466	---	80	92	---
TOTAL	3525	3492	3707	3180	3350	4453	5449	12329	10799	4667	2717	2676
MEAN	114	116	120	103	116	144	182	398	360	151	87.6	89.2
MAX	146	124	161	160	160	270	236	680	487	251	127	99
MIN	94	100	90	60	70	115	146	285	251	76	73	79
AC-FT	6990	6930	7350	6310	6640	8830	10810	24450	21420	9260	5390	5310

CAL YR 1979 TOTAL 69092 MEAN 189 MAX 859 MIN 80 AC-FT 137000
WTR YR 1980 TOTAL 60344 MEAN 165 MAX 680 MIN 60 AC-FT 119700

06291000 OWL CREEK NEAR LODGE GRASS, MT

LOCATION.--Lat 45°16'05", long 107°18'03", in NW¼NE¼SE¼,revised, sec.33, T.6 S., R.35 E., Big Horn County, Hydrologic Unit 10080016, on right bank 1.4 mi (2.2 km) downstream from Sioux Pass Creek, 5.0 mi (8.0 km) southwest of Lodge Grass, and 7.0 mi (11.3 km) upstream from mouth.

DRAINAGE AREA.--163 mi^2 (422 km^2), revised.

PERIOD OF RECORD.--April 1939 to September 1945, October 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,460 ft (1,054 m), revised, from topographic map. April 1939 to September 1945, recording gage at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Numerous diversions for irrigation above station.

AVERAGE DISCHARGE.-- 7 years (water years 1940-45, 1980), 10.0 ft^3/s (0.283 m^3/s), 7,250 acre-ft/yr (8.94 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,020 ft^3/s (28.9 m^3/s) June 18, 1944, gage height, 14.18 ft (4.322 m); maximum gage height, 14.50 ft (4.420 m) Mar. 18, 1944 (ice jam); no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 60 ft^3/s (1.70 m^3/s) and maximums (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 24	1445	*96	2.72	*4.53	1.381	May 11	0715	88	2.49	4.36	1.329
Mar. 31	2230	70	1.98	3.97	1.210	May 26	1230	68	1.93	3.91	1.192
Apr. 6	1930	76	2.15	4.10	1.250	May 31	1030	90	2.55	4.41	1.344
Apr. 15	1930	65	1.84	3.84	1.170						

Minimum daily, 1.5 ft^3/s (0.042 m^3/s) Jan. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.7	14	15	18	2.5	15	56	17	31	7.8	4.0	4.0
2	9.0	13	16	18	5.0	18	41	18	25	7.9	4.0	3.7
3	9.2	13	18	18	5.8	18	37	17	21	8.1	3.9	3.7
4	9.9	13	20	17	5.8	15	32	19	18	7.6	4.2	3.5
5	10	14	21	16	5.4	13	36	19	15	7.1	4.8	3.4
6	10	14	21	7.0	5.0	11	56	17	16	7.3	8.7	3.4
7	10	14	21	3.0	4.5	14	64	16	20	6.8	5.8	3.3
8	10	13	20	3.0	4.0	16	49	15	20	6.5	3.7	3.0
9	10	13	19	2.5	3.5	17	34	16	16	7.1	3.3	3.5
10	11	14	17	2.5	3.2	20	39	26	14	7.9	3.2	3.5
11	11	15	16	2.5	3.0	30	47	65	14	6.8	3.3	3.7
12	11	15	16	9.0	3.0	25	39	29	13	7.1	3.2	3.5
13	11	14	17	19	2.5	20	28	22	11	6.8	3.7	3.8
14	12	16	17	19	2.5	25	27	20	11	6.8	3.7	3.7
15	12	15	11	19	2.1	35	45	17	12	7.0	3.9	3.8
16	12	15	5.0	18	2.0	30	52	16	15	6.8	4.3	4.2
17	13	15	10	17	2.1	30	38	16	14	6.8	4.7	4.0
18	13	15	15	16	2.4	35	31	19	13	6.7	5.0	3.8
19	12	14	20	13	2.5	45	28	18	11	7.0	4.4	3.9
20	12	14	25	14	10	40	28	15	12	6.5	4.0	4.3
21	12	14	22	16	9.0	45	25	14	12	7.3	3.9	4.0
22	13	15	21	18	7.0	50	24	14	11	6.4	3.8	4.4
23	13	14	21	19	6.5	57	22	13	11	6.1	3.8	4.8
24	12	14	20	17	6.0	70	20	12	9.7	4.8	3.8	5.1
25	12	13	20	15	6.0	54	19	20	9.4	4.4	3.4	4.6
26	12	12	20	12	15	38	18	45	8.9	4.3	3.7	5.0
27	12	12	20	10	30	32	17	22	8.2	4.2	3.5	5.1
28	12	14	19	6.0	25	32	17	16	9.0	4.0	3.5	4.7
29	15	13	19	2.0	20	33	17	14	9.5	3.9	3.8	4.3
30	18	14	18	1.5	---	46	17	29	8.6	3.9	3.8	4.2
31	16	---	18	1.7	---	58	---	55	---	3.9	3.4	---
TOTAL	363.8	418	558.0	369.7	201.3	987	1003	671	419.3	195.6	126.2	119.9
MEAN	11.7	13.9	18.0	11.9	6.94	31.8	33.4	21.6	14.0	6.31	4.07	4.00
MAX	18	16	25	19	30	70	64	65	31	8.1	8.7	5.1
MIN	8.7	12	5.0	1.5	2.0	11	17	12	8.2	3.9	3.2	3.0
AC-FT	722	829	1110	733	399	1960	1990	1330	832	388	250	238

WTR YR 1980 TOTAL 5432.8 MEAN 14.8 MAX 70 MIN 1.5 AC-FT 10780

06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MT

LOCATION.--Lat 45°44'08", long 107°33'27", in SE1/4 NE1/4 NE1/4 sec.19, T.1 S., R.34 E., Big Horn County, Hydrologic Unit 10080016, on left bank 50 ft (15 m) downstream from bridge on Sarpy Road, 0.2 mi (0.3 km) upstream of terminal wasteway of Agency Canal, 0.6 mi (1.0 km) upstream from mouth, and 2.3 mi (3.7 km) east of Hardin.

DRAINAGE AREA.--1,294 mi^2 (3,351 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,882.29 ft (878.522 m), revised, National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 7, 1953, nonrecording gage at site 0.4 mi (0.6 km) downstream. Oct. 7, 1953, to May 6, 1963, water-stage recorder at site 0.3 mi (0.5 km) downstream. May 6, 1963, to Nov. 6, 1963, nonrecording gage at site 0.4 mi (0.6 km) downstream. All at different datums. Nov. 7, 1963, to Aug. 15, 1976, water-stage recorder at site 35 ft (11 m) downstream at present datum. Aug. 15, 1976, to Sept. 30, 1978, water-stage recorders are located on each bank downstream of Sarpy Road bridge and were used depending on control conditions. The left bank gage is given in the "LOCATION" paragraph. The right bank gage location was lat 45°44'10", long 107°33'25", in SW1/4 NW1/4 NW1/4 sec.20, T.1 S., R.34 E., at approximately the same datum. Oct. 1, 1979, to Sept. 30, 1980, water-stage recorder on left bank.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Flow partly regulated by Willow Creek Reservoir (capacity 23,000 acre-ft, 28.4 hm^3). Diversions for irrigation of about 17,000 acres (68.8 km^2) above station. Figures of discharge given herein include flow of terminal wasteway of Agency Canal.

AVERAGE DISCHARGE.--27 years, 322 ft^3/s (9.119 m^3/s), 233,300 acre-ft/yr (288 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,600 ft^3/s (640 m^3/s) May 19, 1978, gage height, 11.20 ft (3.414 m), used gage height as obtained at bridge on Sarpy Road; maximum gage height, 11.78 ft (3.591 m) Mar. 20, 1960, site and datum then in use (backwater from ice); minimum discharge observed, 0.20 ft^3/s (0.006 m^3/s) Aug. 7, 1961, result of discharge measurement.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 1,000 ft^3/s (28.3 m^3/s) Feb. 26; only peak above base of 1,000 ft^3/s (28.3 m^3/s); maximum gage height, 4.83 ft (1.472 m) Feb. 23; minimum discharge, 34 ft^3/s (0.96 m^3/s) Aug. 2, gage height, 1.59 ft (0.485 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	181	170	180	150	500	304	273	575	146	42	81
2	110	170	180	170	160	600	322	276	580	148	36	68
3	110	167	190	170	190	450	313	309	523	133	53	59
4	112	164	194	160	210	360	304	309	477	126	77	59
5	114	170	207	160	200	320	299	300	439	123	82	55
6	117	176	211	150	190	260	295	283	435	119	72	57
7	117	176	201	130	180	260	304	270	456	113	56	57
8	120	170	201	120	180	280	342	261	483	101	52	51
9	120	167	201	110	170	300	337	277	356	97	51	57
10	123	167	184	100	160	340	290	301	393	82	52	61
11	130	173	149	100	170	360	286	453	381	68	52	68
12	140	173	172	110	170	465	299	530	381	65	52	77
13	142	173	211	140	170	797	308	430	379	64	47	71
14	139	161	204	170	180	601	295	349	365	81	54	74
15	139	158	218	220	160	484	269	300	366	78	54	76
16	145	158	110	320	130	420	265	270	414	67	59	76
17	150	161	140	360	150	389	308	254	538	67	65	77
18	164	167	210	330	180	348	304	254	413	60	82	78
19	170	173	200	290	230	323	273	259	349	55	84	80
20	164	170	190	250	300	328	257	260	310	53	79	74
21	158	156	190	260	340	327	257	255	305	56	82	73
22	161	145	190	270	370	328	261	287	279	69	78	75
23	166	136	190	270	350	328	273	390	266	75	76	78
24	163	184	190	290	340	328	286	505	238	76	89	81
25	163	191	180	300	650	333	286	615	224	62	71	83
26	160	157	180	250	1000	338	295	746	211	54	65	85
27	157	150	180	180	800	300	295	701	191	53	64	88
28	155	150	180	130	700	283	290	520	179	55	70	87
29	158	140	170	110	650	273	282	437	166	55	83	81
30	173	140	160	120	---	269	272	447	171	51	83	78
31	197	---	170	130	---	277	---	524	---	43	86	---
TOTAL	4443	4924	5723	6050	8830	11569	8771	11645	10843	2495	2048	2165
MEAN	143	164	185	195	304	373	292	376	361	80.5	66.1	72.2
MAX	197	191	218	360	1000	797	342	746	580	148	89	88
MIN	106	136	110	100	130	260	257	254	166	43	36	51
AC-FT	8810	9770	11350	12000	17510	22950	17400	23100	21510	4950	4060	4290

CAL YR 1979 TOTAL 138289 MEAN 379 MAX 1900 MIN 86 AC-FT 274300
WTR YR 1980 TOTAL 79506 MEAN 217 MAX 1000 MIN 36 AC-FT 157700

06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1970 to December 1979 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1969 to December 1979.

REMARKS.--Once-daily water temperatures are available in the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,870 micromhos Apr. 7, 1979; minimum daily, 377 micromhos June 18, 1974.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, WATER (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)
OCT											
17...	1600	150	801	8.3	20.0	330	120	69	39	49	1.2
NOV											
07...	1400	181	869	--	3.5	350	120	75	39	53	1.2

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)
OCT											
17...	3.0	210	220	3.7	.2	6.5	517	.70	209	.02	.00
NOV											
07...	3.0	230	230	4.8	.2	7.8	551	.75	269	.08	.04

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	795	819	1050									
2	792	819	1040									
3	800	854	1000									
4	802	851	975									
5	805	862	---									
6	807	842	---									
7	809	882	---									
8	805	864	---									
9	802	841	---									
10	806	852	---									
11	810	859	---									
12	807	869	---									
13	801	872	---									
14	805	878	---									
15	811	876	---									
16	808	880	---									
17	798	876	---									
18	791	872	---									
19	785	884	---									
20	788	890	---									
21	793	899	---									
22	822	---	---									
23	817	943	---									
24	814	962	---									
25	811	881	---									
26	820	912	---									
27	840	952	---									
28	838	973	---									
29	841	991	---									
30	831	1050	---									
31	829	---	---									
MEAN	809	890	1020									

WTR YR 1980 MEAN 859 MAX 1050 MIN 785

06294690 TULLOCK CREEK NEAR BIGHORN, MT

LOCATION.--Lat 46°05'08", long 107°24'20", in NE¼NE¼NE¼ sec.10, T.4 N., R.35 E., Treasure County, Hydrologic Unit 10080015, on right bank at old diversion dam, 0.3 mi (0.5 km) upstream from Thunder Creek, 5.6 mi (9.0 km) south of Bighorn, and 8.7 mi (14.0 km), revised, upstream from mouth.

DRAINAGE AREA.--446 mi^2 (1,155 km^2).

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,770 ft (844 m), from topographic map.

REMARKS.--Records poor. Diversions for irrigation of about 215 acres (87 km^2) above station. Several observations of water temperature were made during the year and are available in files of the Helena district office.

AVERAGE DISCHARGE.--6 years, 12.3 ft^3/s (0.348 m^3/s), 8,910 acre-ft/yr (11.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximim discharge, 1,960 ft^3/s (55.5 m^3/s) Mar. 2, 1975, gage height, 7.4 ft (2.26 m), from floodmark; no flow on many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 366 ft^3/s (10.4 m^3/s) June 18, gage height, 4.68 ft (1.426 m), only peak above base of 100 ft^3/s (2.83 m^3/s); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.16	.48	.62	.60	.60	9.0	19	2.0	4.1	.28	.00	.00
2	.18	.52	.80	.60	1.5	13	18	2.4	3.7	.40	.00	.00
3	.28	.48	1.0	.60	1.2	12	16	2.1	3.0	.37	.00	.00
4	.37	.52	1.1	.55	1.3	10	13	3.1	1.9	.26	.00	.00
5	.48	.48	1.1	.50	1.0	4.0	11	2.6	1.7	.20	.00	.00
6	.44	.54	1.1	.25	.90	7.0	17	2.0	1.5	.30	.00	.00
7	.28	.52	.96	.14	.80	11	16	1.7	.65	.33	.00	.00
8	.25	.52	.84	.14	.60	12	13	2.0	.79	.30	.00	.00
9	.34	.48	.79	.10	.70	11	12	2.4	.56	.34	.00	.00
10	.31	.52	.70	.16	.65	10	12	2.9	.37	.40	.00	.00
11	.31	.56	.50	.14	.45	11	9.5	3.3	.48	.30	.00	.00
12	.28	.60	.40	.50	.50	11	9.5	3.7	3.5	.25	.00	.00
13	.31	.56	.70	1.4	.45	11	8.0	5.0	8.3	.22	.00	.00
14	.31	.60	.70	1.3	.40	12	7.2	5.2	11	.20	.00	.00
15	.25	.69	1.0	1.2	.35	11	7.0	5.4	13	.20	.00	.00
16	.31	.60	.20	1.2	.30	10	6.8	5.9	8.4	.12	.00	.00
17	.29	.60	.40	1.3	.50	15	5.6	6.0	9.8	.14	.00	.00
18	.28	.65	1.0	.80	.90	70	4.1	5.5	36	.10	.00	.00
19	.31	.65	1.2	.40	1.3	60	2.8	4.5	24	.06	.00	.00
20	.37	.69	.90	.20	1.3	50	1.6	3.8	4.6	.12	.00	.00
21	.44	.66	.70	.26	1.2	40	2.5	3.5	3.3	.10	.00	.00
22	.44	.66	.60	.26	1.2	25	3.3	3.4	3.2	.08	.00	.00
23	.48	.70	.56	.40	2.0	30	2.4	1.6	1.6	.06	.00	.00
24	.52	.74	.56	.35	5.0	16	2.5	.75	1.0	.08	.00	.00
25	.52	.76	.64	.25	18	28	2.9	1.2	.70	.04	.00	.00
26	.56	.79	.70	.20	22	20	1.9	1.1	.50	.02	.00	.00
27	.52	.76	.64	.18	25	22	1.8	.34	.40	.00	.00	.00
28	.52	.66	.64	.16	18	22	1.8	1.1	.35	.00	.00	.00
29	.48	.56	.58	.16	15	21	2.0	1.0	.32	.00	.00	.00
30	.52	.56	.54	.18	---	20	2.0	1.4	.30	.00	.00	.00
31	.48	---	.50	.30	---	19	---	5.0	---	.00	.00	---
TOTAL	11.59	18.11	22.67	14.78	123.10	623.0	232.2	91.89	149.02	5.27	.00	.00
MEAN	.37	.60	.73	.48	4.24	20.1	7.74	2.96	4.97	.17	.000	.000
MAX	.56	.79	1.2	1.4	25	70	19	6.0	36	.40	.00	.00
MIN	.16	.48	.20	.10	.30	4.0	1.6	.34	.30	.00	.00	.00
AC-FT	23	36	45	29	244	1240	461	182	296	10	.00	.00

CAL YR 1979 TOTAL 4727.44 MEAN 13.0 MAX 300 MIN .10 AC-FT 9380
WTR YR 1980 TOTAL 1291.63 MEAN 3.53 MAX 70 MIN .00 AC-FT 2560

06294700 BIGHORN RIVER AT BIGHORN, MT

LOCATION.--Lat 46°08'50", long 107°28'00", in NE1/4 NE1/4 NE1/4 sec.33, T.5 N., R.34 E., Treasure County, Hydrologic Unit 10080015, on right bank 150 ft (46 m) downstream from bridge on old U.S. Highway 10, 0.3 mi (0.5 km) downstream from bridge on Interstate Highway 94, 0.7 mi (1.1 km) upstream from mouth, 1.3 mi (2.1 km) southwest of Bighorn, and 4.4 mi (7.1 km) east of Custer.

DRAINAGE AREA.--22,885 mi² (59,727 km²). Area at site used prior to Oct. 7, 1955, 22,410 mi² (58,042 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1945 to current year. Prior to Oct. 7, 1955, published as "near Custer."

GAGE.--Water-stage recorder. Altitude of gage is 2,690 ft (820 m), by barometer. May 11 to Dec. 6, 1945, nonrecording gage, and Dec. 7, 1945, to Oct. 6, 1955, water-stage recorder, at site 4 mi (6 km) upstream at different datum.

REMARKS.--Water-discharge records good except those for winter periods and periods of backwater in May and June, which are poor. Major regulation by 14 reservoirs in Wyoming and 1 in Montana with combined usable storage of about 1,400,000 acre-ft (1.73 km²), and Bighorn Lake (station 06286400). Diversions for irrigation of about 465,000 acres (1,880 km²) above station.

AVERAGE DISCHARGE.--35 years, 3,946 ft³/s (111.8 m³/s), 2,859,000 acre-ft/yr (3.53 km³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,200 ft³/s (1,680 m³/s) May 20, 1978, gage height, 14.15 ft (4.313 m); maximum gage height recorded, 14.21 ft (4.331 m) Apr. 2, 1965 (ice jam); minimum discharge, about 275 ft³/s (7.79 m³/s) Nov. 15, 1959, result of freezeup; minimum daily, 400 ft³/s (11.3 m³/s) Apr. 4, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,690 ft³/s (161 m³/s) July 5, gage height 4.46 ft (1.359 m); maximum gage height, 9.33 ft (2.844 m) Jan. 14 (backwater from ice jam); minimum discharge, 680 ft³/s (19.3 m³/s) Oct. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2270	1040	2530	3060	3200	3600	3430	2330	2770	5390	2470	2550
2	2300	827	2530	3130	3400	3800	3520	2330	2670	5480	2480	2500
3	2350	763	2630	3130	3500	3700	3540	2550	2650	5360	2580	2530
4	2370	763	3150	3110	3500	3400	3560	2650	2650	5360	2630	2450
5	2320	927	3220	3110	3500	3200	3540	2620	2810	5590	2500	2450
6	2300	950	3220	3090	3540	3200	3470	2620	3190	4810	2500	2380
7	2330	927	3130	3050	3540	3300	3490	2530	3240	4430	2420	2380
8	2330	904	3080	2900	3540	3350	3520	2770	3240	4880	2500	2430
9	2350	927	3110	2700	3450	3490	3640	2810	3150	4860	2580	2480
10	2330	927	3150	2500	3370	3620	4490	2450	3200	4790	2570	2480
11	2350	2380	3110	2800	3350	3550	4450	3130	3240	4830	2520	2530
12	2350	2620	3090	3000	3320	3760	4490	2970	4240	4940	2620	2580
13	2420	2650	3130	3100	3330	3980	4470	2300	4700	4810	2550	2760
14	2450	2620	3150	3150	3320	4060	4510	1880	2910	4900	2600	2970
15	2480	2570	3200	3200	3370	3800	4470	1620	2970	4880	2700	3060
16	2470	2580	3190	3300	3400	3740	4510	1480	2880	4810	2860	3040
17	2470	2630	3100	3400	3500	3660	4580	1440	2950	4900	2880	3000
18	2480	2630	3090	3300	4100	3510	4620	1450	2810	4940	2860	3000
19	2480	2650	3100	3220	3240	3450	4550	1580	3090	4640	2840	3110
20	2470	2670	3200	3300	3330	3450	4530	1600	3110	4240	2790	3940
21	2430	2580	3200	3300	3430	3410	4600	1730	3200	4220	2760	4180
22	2450	2530	3170	3130	3740	3370	4340	2580	3090	4120	2740	4220
23	2430	2530	3170	3090	4060	3350	3320	3280	2900	4180	2740	4260
24	2430	2620	3130	3220	4180	3390	2480	3240	2900	4150	2760	4220
25	2420	2670	3170	3220	3940	3370	2350	2130	2970	4080	2670	4280
26	2400	2550	3110	3240	3900	3410	2380	2500	3390	3840	2530	4300
27	1560	2580	3130	3500	3980	3350	2450	2200	4370	3800	2520	4220
28	763	2550	3040	3200	4260	3330	2380	2090	5210	3510	2520	4260
29	973	2550	3000	3000	4620	3300	2320	2590	5590	3300	2550	4260
30	1060	2500	3040	2900	---	3290	2240	2760	5500	2600	2530	4260
31	1030	---	3060	3000	---	3300	---	2840	---	2530	2520	---
TOTAL	67616	60645	95330	96350	104910	108500	110240	73150	101590	139160	81320	97080
MEAN	2181	2022	3075	3108	3618	3500	3675	2360	3386	4490	2623	3236
MAX	2480	2670	3220	3500	4620	4060	4620	3280	5590	5590	2880	4300
MIN	763	763	2530	2500	3200	3200	2240	1440	2650	2530	2420	2380
AC-FT	134100	120300	189100	191100	208100	215200	218700	145100	201500	276100	161300	192600

CAL YR 1979 TOTAL 1316811 MEAN 3608 MAX 8430 MIN 763 AC-FT 2612000
WTR YR 1980 TOTAL 1135911 MEAN 3104 MAX 5590 MIN 763 AC-FT 2253000

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1951 to current year.
WATER TEMPERATURES: April 1949 to September 1951, August 1952 to current year.

INSTRUMENTATION.--Temperature recorder May 2 to September 30, 1974, July 5, 1977 to current year.

REMARKS.--Prior to October 1948, published as "near Custer."

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,940 micromhos July 10, 1961; minimum daily, 384 micromhos June 20, 1951.
WATER TEMPERATURES: Maximum, 30.0°C July 17, 18, 1953; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,120 micromhos Oct. 30; minimum daily, 853 micromhos Sept. 30.
WATER TEMPERATURES: Maximum, 23.0°C July 31, Aug. 1; minimum, 0.0°C on many days during December to March.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
OCT											
18...	1130	2420	2	860	8.7	13.0	12.5	1.3	9.3	96	K17
NOV											
09...	1630	871	73	1040	8.7	.0	3.5	1.1	13.0	107	K1
JAN											
02...	1530	3080	0	1000	8.6	3.0	4.0	4.8	12.8	107	24
22...	1430	3090	3	958	8.5	2.0	1.5	4.6	12.1	94	K3
FEB											
18...	1200	4100	51	1010	8.4	4.5	1.0	6.5	12.5	99	K4
MAR											
17...	1300	3620	1	1040	8.2	11.0	3.5	85	11.7	97	K7
APR											
14...	1415	4510	1	1110	8.4	24.0	10.0	20	10.6	103	K4
MAY											
23...	1200	3330	0	1090	8.6	29.0	21.0	11	8.9	111	25
JUN											
16...	1430	2900	1	1040	8.2	26.0	17.5	40	8.7	98	150
JUL											
07...	1215	4320	1	1080	8.2	32.5	17.0	24	9.2	103	130
AUG											
14...	1130	2800	1	1040	8.6	27.0	18.0	21	8.4	97	110
SEP											
15...	1400	3040	2	847	8.6	10.5	16.5	7.3	8.5	94	63

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT 18...	K16	300	150	74	28	81	2.0	4.2	150	300
NOV 09...	K12	390	220	92	38	98	2.2	4.5	170	410
JAN 02...	K18	350	160	86	32	96	2.2	4.0	190	350
22...	K14	340	160	84	31	91	2.2	4.0	180	320
FEB 18...	K10	370	180	92	34	98	2.2	4.1	190	350
MAR 17...	210	330	160	80	32	93	2.2	4.2	170	350
APR 14...	K13	390	200	96	36	100	2.2	4.4	190	390
MAY 23...	300	350	190	79	37	110	2.6	4.4	160	370
JUN 16...	100	350	210	86	33	91	2.1	5.1	140	350
JUL 07...	45	360	170	88	34	99	2.3	5.2	190	340
AUG 14...	--	330	160	82	30	97	2.3	4.7	170	330
SEP 15...	38	270	110	66	25	82	2.2	4.3	160	280

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT 18...	12	.4	8.7	599	600	.81	3910	.29	--	.00
NOV 09...	12	.5	6.6	763	765	1.04	1790	.16	.17	.02
JAN 02...	14	.4	8.6	694	707	.94	5770	.48	.43	.01
22...	11	.4	9.2	700	661	.95	5840	.42	.42	.01
FEB 18...	13	.4	9.4	716	717	.97	7930	.53	.45	.03
MAR 17...	12	.4	8.3	739	684	1.01	7220	.39	.42	.04
APR 14...	12	.5	9.3	806	764	1.10	9820	.35	.35	.00
MAY 23...	14	.5	10.0	749	712	1.02	6730	.00	.02	.04
JUN 16...	17	.6	6.7	707	675	.96	5540	.19	.22	.03
JUL 07...	15	.6	5.8	745	703	1.01	8690	.34	.30	.01
AUG 14...	13	.5	7.4	657	669	.89	4970	.42	.49	.00
SEP 15...	11	.4	8.1	629	574	.86	5160	.28	.26	.03

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N) (00607)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)
OCT										
18...	.00	.96	.51	.96	.51	.01	.00	--	5.1	.5
NOV										
09...	--	.70	--	.72	.55	.00	.00	6.4	--	--
JAN										
02...	.01	1.1	.86	1.1	.87	.02	.01	7.0	--	--
22...	.01	.46	.45	.47	.46	.04	.00	4.2	4.4	.3
FEB										
18...	.03	.45	.64	.48	.67	.05	.01	--	7.4	.5
MAR										
17...	.06	.83	.63	.87	.69	.01	.03	8.8	--	--
APR										
14...	.02	1.1	.94	1.1	.96	.08	.01	6.4	--	--
MAY										
23...	.07	.46	.44	.50	.51	.04	.01	--	6.6	.6
JUN										
16...	.04	1.1	.96	1.1	1.0	.01	.04	9.2	--	--
JUL										
07...	.01	.85	.63	.86	.64	.06	.01	5.6	--	--
AUG										
14...	.01	.84	.80	.84	.81	.08	.02	--	8.2	2.3
SEP										
15...	.00	.45	.36	.48	.36	.04	.01	8.5	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
OCT										
18..	1130	2	2	200	60	0	< 1	10	0	0
FEB										
18...	1200	3	1	200	60	0	< 1	10	0	3
MAY										
23...	1200	2	2	100	60	0	1	0	0	4
AUG										
14...	1130	3	3	0	70	1	< 1	0	0	3

DATE	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RDIS--SOLVED (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)
OCT										
18...	< 3	5	0	390	< 10	1	0	30	8	.1
FEB										
18...	< 3	5	1	520	< 10	1	3	30	6	.0
MAY										
23...	0	6	1	420	10	3	1	50	10	.1
AUG										
14...	< 3	12	0	1400	< 10	11	2	30	5	.0

DATE	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
OCT									
18...	.0	1	2	2	2	0	0	0	4
FEB									
18...	.0	0	2	3	3	1	0	20	< 3
MAY									
23...	.0	6	0	2	2	0	0	10	0
AUG									
14...	.0	7	3	3	3	0	0	70	< 3

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980 ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	882	1080	1030	989	1010	949	1040	1020	1040	1020	1020	910
2	886	1070	1040	993	995	890	1060	1060	1040	1040	1030	910
3	890	1060	1040	998	953	970	1090	1040	1030	1000	1030	900
4	888	1080	1030	998	968	1010	1070	1040	1030	1040	1030	900
5	892	1110	1040	993	996	1030	1090	1040	1020	1040	1030	885
6	887	1100	1020	1020	1000	1040	1080	1020	1010	1040	1030	890
7	898	1100	1020	1050	1010	1040	1060	1040	1010	1040	1020	883
8	900	1090	1020	1060	1020	1050	1030	1060	1020	1040	1020	880
9	902	1100	1020	1080	1020	1060	1040	1050	989	1020	1020	881
10	909	1100	1020	1070	1010	1060	1030	1060	1000	1040	1020	888
11	917	1040	---	1060	1000	1060	1030	1060	1010	1040	1020	889
12	924	1030	1010	---	1000	1070	1020	1040	991	1020	1000	891
13	933	1030	1020	1050	1010	1080	1060	1060	976	1040	1010	890
14	931	1030	1020	992	1020	1060	1050	1060	973	1030	1020	880
15	929	1020	1020	998	1060	1050	1040	1100	985	1040	1020	880
16	925	1010	1010	1010	1050	1050	1060	1090	1010	1040	1010	879
17	921	1010	1010	1020	1060	1040	1040	1080	1020	1020	1000	880
18	920	1020	1020	1010	1030	1050	1050	1080	1010	1040	995	870
19	933	1010	1020	992	1040	1060	1040	1070	1000	1020	990	865
20	949	1020	1010	1020	1020	1050	1040	1080	1020	1030	950	870
21	956	1030	1010	1020	1010	1060	1040	1080	1010	1040	950	871
22	961	1040	1010	1020	1030	1060	1040	1060	1020	1030	960	868
23	965	1040	1010	1000	1040	1070	1040	1000	1020	1040	960	866
24	976	1040	1010	1000	1030	1070	1050	1040	1020	1040	950	860
25	988	1040	1010	1020	999	1080	1050	1010	1020	1040	930	862
26	993	1020	1000	1040	1000	1080	1040	1010	1010	1020	940	860
27	998	1040	1000	971	1020	1080	1040	990	1030	1040	950	860
28	1040	1040	1000	1080	1020	1090	1040	1060	1040	1030	940	859
29	1050	1040	1020	1070	990	1100	1040	1050	1040	1030	930	860
30	1120	1040	1010	1060	---	1090	1040	1040	1040	1030	930	853
31	1080	---	1000	1060	---	1100	---	1060	---	1030	930	---
MEAN	947	1050	1020	1020	1010	1050	1050	1050	1010	1030	988	878

WTR YR 1980 MEAN 1010 MAX 1120 MIN 853

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	15.5	13.5	14.5	5.5	4.5	5.0	3.0	1.5	2.5	---	---	---
2	14.0	12.5	13.5	5.0	3.0	4.5	4.5	3.0	3.5	4.0	---	---
3	14.0	11.5	12.5	5.5	4.0	4.5	5.0	4.5	5.0	3.5	3.0	3.5
4	14.0	11.5	13.0	5.5	4.5	5.0	7.0	5.0	6.0	3.0	1.5	2.0
5	15.0	13.0	14.0	5.0	4.0	4.5	6.5	5.0	6.0	2.0	.5	2.0
6	15.5	13.5	14.5	5.5	4.0	4.5	6.0	5.0	5.5	.5	.0	.0
7	15.5	14.0	14.5	5.0	4.0	4.5	6.0	5.0	5.5	.0	.0	.0
8	14.5	12.0	13.5	4.5	3.5	4.0	5.5	4.5	5.0	.0	.0	.0
9	12.5	10.5	11.5	3.5	3.0	3.0	5.5	5.0	5.5	.0	.0	.0
10	13.5	10.5	12.0	3.5	2.5	3.0	5.5	3.5	5.0	.0	.0	.0
11	15.5	13.0	14.0	5.5	3.5	4.5	3.5	1.0	2.0	.0	.0	.0
12	15.0	14.0	14.5	6.0	5.0	5.5	2.5	1.0	1.5	.0	.0	.0
13	14.5	12.5	13.5	6.5	5.0	5.5	2.5	1.5	2.5	.0	.0	.0
14	15.0	13.0	14.0	6.5	5.0	6.0	4.5	2.5	3.5	.0	.0	.0
15	15.0	14.0	14.5	6.5	5.5	6.0	4.5	.0	2.0	.0	.0	.0
16	15.0	14.0	14.5	6.5	5.5	6.0	---	---	---	.0	.0	.0
17	14.0	13.0	13.5	6.5	6.0	6.5	---	---	---	---	---	---
18	13.5	12.0	13.0	7.0	6.5	6.5	---	---	---	---	---	---
19	13.0	12.0	13.0	6.5	5.5	6.0	---	---	---	.0	.0	.0
20	12.0	10.5	11.0	5.5	4.5	5.0	---	---	---	.0	.0	.0
21	11.0	9.5	10.5	4.5	3.5	4.0	---	---	---	.0	.0	.0
22	10.5	9.5	10.0	3.5	2.5	3.0	---	---	---	2.0	---	---
23	11.5	10.0	10.5	3.5	2.0	3.0	---	---	---	3.0	2.0	2.5
24	12.5	11.0	11.5	5.0	3.5	4.5	---	---	---	4.0	3.0	3.5
25	13.0	11.5	12.5	5.5	4.5	5.0	---	---	---	3.5	.0	1.5
26	13.0	12.0	12.5	4.5	3.5	4.0	---	---	---	.0	.0	.0
27	12.0	10.5	11.5	3.5	1.5	2.5	---	---	---	.0	.0	.0
28	11.0	10.0	10.5	1.5	1.0	1.5	---	---	---	.0	.0	.0
29	10.0	8.5	9.0	1.5	.5	1.0	---	---	---	.0	.0	.0
30	8.5	7.0	7.5	1.5	.5	1.0	---	---	---	.0	.0	.0
31	7.0	5.5	6.0	---	---	---	---	---	---	.0	.0	.0
MONTH	15.5	5.5	12.5	7.0	.5	4.5	7.0	.0	4.0	4.0	.0	.5

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN FEBRUARY	MEAN	MAX	MIN MARCH	MEAN	MAX	MIN APRIL	MEAN	MAX	MIN MAY	MEAN
1	.0	.0	.0	1.5	.5	1.0	4.5	3.0	4.0	14.0	12.0	13.0
2	.0	.0	.0	2.5	.5	1.5	5.5	4.0	4.5	14.5	11.5	13.0
3	.0	.0	.0	2.5	1.0	2.0	6.0	4.5	5.0	15.5	13.0	14.0
4	2.5	.0	1.5	1.0	.0	.5	7.5	4.0	6.0	16.0	13.5	14.5
5	3.5	2.0	3.0	.5	.0	.5	8.0	5.5	7.0	16.5	13.5	14.5
6	3.0	2.5	3.0	1.0	.0	.5	8.5	6.5	7.5	16.0	13.5	14.5
7	2.5	1.5	2.0	2.5	.0	1.5	8.0	6.0	6.5	15.5	12.5	14.0
8	1.5	.5	1.5	4.0	2.5	3.0	7.5	4.5	6.0	15.0	12.0	13.5
9	2.0	1.0	1.5	4.5	3.0	3.5	8.5	5.5	7.0	15.0	13.0	14.0
10	2.0	1.0	1.5	5.0	2.5	4.0	8.0	6.5	7.0	13.5	12.0	12.5
11	1.5	.0	1.0	5.0	3.5	4.5	8.5	5.5	7.0	14.0	10.5	12.0
12	2.0	1.0	1.5	5.0	3.5	4.0	8.0	6.0	7.0	13.5	11.5	12.5
13	1.5	.0	1.0	4.5	2.5	3.5	8.5	5.0	6.5	14.0	11.5	12.5
14	.5	.0	.5	5.0	2.5	4.0	10.0	6.5	8.5	15.5	11.5	13.5
15	.5	.0	.5	5.0	4.0	4.0	9.5	8.0	8.5	15.5	12.0	13.5
16	.5	.0	.0	3.5	2.0	3.0	9.5	6.5	8.0	15.0	13.0	14.0
17	.5	.0	.0	4.5	2.0	3.5	11.0	7.0	9.0	16.5	13.0	14.5
18	2.0	.0	1.0	5.0	3.0	4.0	11.0	8.0	9.5	17.5	14.0	16.0
19	4.0	1.5	2.5	5.0	4.0	4.5	11.5	8.0	9.5	17.0	15.0	16.0
20	3.5	2.5	3.5	6.0	4.0	5.0	12.5	8.5	10.5	19.0	15.0	17.0
21	4.0	2.5	3.5	6.0	4.5	5.0	13.0	9.0	11.0	21.0	16.5	18.5
22	4.0	3.0	3.5	6.0	3.5	5.0	13.0	10.0	11.5	22.5	18.5	20.5
23	4.5	2.5	3.5	6.0	4.0	5.0	12.0	9.5	11.0	22.5	20.0	21.5
24	4.5	2.5	3.5	6.0	4.5	5.5	14.0	10.5	12.0	21.0	19.0	20.0
25	3.5	2.0	3.0	5.5	3.5	4.0	14.0	11.0	12.5	19.0	16.5	18.0
26	5.0	2.5	4.0	5.5	3.0	4.0	14.0	11.0	12.5	16.5	14.0	15.5
27	6.5	4.0	5.5	6.5	3.5	5.0	14.5	11.5	13.0	17.5	14.0	15.5
28	6.0	3.5	5.0	7.0	4.5	5.5	15.0	12.0	13.5	19.0	16.0	17.0
29	3.5	1.0	2.0	7.5	4.5	6.0	16.0	13.0	14.5	18.0	15.5	16.5
30	---	---	---	7.0	5.5	6.5	15.5	13.5	14.5	16.5	13.5	14.5
31	---	---	---	6.5	4.0	5.0	---	---	---	15.5	12.0	14.0
MONTH	6.5	.0	2.0	7.5	.0	3.5	16.0	3.0	9.0	22.5	10.5	15.0
		JUNE			JULY			AUGUST			SEPTEMBER	
1	17.0	13.5	15.5	---	---	---	23.0	21.0	22.0	18.5	16.5	17.5
2	17.5	14.5	16.0	---	---	---	22.5	20.5	21.5	17.5	16.5	17.0
3	18.5	15.5	17.0	---	---	---	21.5	17.5	19.5	18.0	16.5	17.0
4	20.0	16.0	18.0	---	---	---	18.0	16.0	17.0	18.0	15.5	16.5
5	19.5	17.0	18.0	---	---	---	19.5	15.5	17.5	19.0	15.5	17.5
6	17.0	13.5	15.5	---	---	---	21.0	18.0	19.5	20.5	17.5	19.0
7	14.0	12.5	13.0	18.5	---	---	21.0	19.0	20.0	19.5	18.5	19.0
8	16.5	12.5	14.5	17.5	14.5	16.0	20.5	18.0	19.5	19.0	16.0	17.5
9	18.0	14.5	16.5	18.5	15.0	16.5	21.0	18.5	20.0	17.5	14.5	16.0
10	18.5	16.0	17.0	18.5	15.5	17.0	21.5	19.0	20.0	18.5	15.5	17.0
11	19.5	16.5	18.0	18.5	15.0	16.5	21.0	19.0	20.0	20.0	18.0	19.0
12	18.5	16.5	17.5	17.0	15.0	16.0	21.0	18.5	19.5	19.5	18.5	19.0
13	18.5	15.5	17.0	16.5	13.0	14.5	20.0	19.0	19.5	18.5	17.0	17.5
14	18.5	16.5	17.5	18.0	14.5	16.0	19.0	17.5	19.0	19.5	16.5	18.0
15	17.0	15.5	16.5	18.0	15.0	16.5	19.5	18.0	19.0	19.0	15.0	17.0
16	18.0	15.0	16.5	18.0	15.0	16.5	19.5	18.0	18.5	15.5	14.0	15.0
17	18.0	15.5	16.5	17.5	15.5	16.5	20.5	17.5	19.0	17.0	15.0	16.0
18	19.0	16.5	17.5	17.0	13.5	15.5	20.0	18.5	19.5	17.0	15.0	16.0
19	18.0	15.5	17.0	18.0	15.5	16.5	20.0	17.5	19.0	17.5	16.0	16.5
20	18.0	15.5	17.0	19.0	15.5	17.0	18.5	17.5	18.0	17.0	15.5	16.5
21	---	---	---	19.5	16.0	18.0	19.5	16.5	18.0	16.5	16.0	16.0
22	---	---	---	21.0	16.5	19.0	19.0	17.5	18.0	16.0	14.0	15.0
23	---	---	---	20.5	18.0	19.5	19.0	17.0	18.0	16.5	14.5	15.5
24	---	---	---	20.0	17.5	18.5	20.5	18.0	19.5	16.0	14.5	15.0
25	---	---	---	20.5	17.0	18.5	19.5	18.0	18.5	15.5	13.5	14.5
26	---	---	---	21.0	18.0	19.5	18.0	17.0	17.5	16.5	14.0	15.0
27	---	---	---	21.0	18.0	20.0	18.5	16.5	17.5	17.5	14.5	16.0
28	---	---	---	21.5	18.5	20.0	19.5	17.5	18.5	17.0	15.5	16.5
29	---	---	---	20.5	19.0	19.5	19.5	17.0	18.5	17.0	15.0	16.0
30	---	---	---	21.5	18.0	19.5	18.5	17.0	17.5	16.5	15.0	16.0
31	---	---	---	23.0	19.5	21.0	18.5	16.5	17.5	---	---	---
MONTH	20.0	12.5	16.5	23.0	13.0	17.5	23.0	15.5	19.0	20.5	13.5	16.5
YEAR	23.0	.0	10.0									

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
18...	1130	12.5	2420	49	320	94
NOV						
09...	1630	3.5	871	11	26	81
JAN						
02...	1530	4.0	3080	47	391	87
22...	1430	1.5	3090	69	576	60
FEB						
18...	1200	1.0	4100	81	897	60
MAR						
17...	1300	3.5	3620	207	2020	95
APR						
14...	1415	10.0	4510	141	1720	80
MAY						
23...	1200	21.0	3330	56	503	97
JUN						
16...	1430	17.5	2900	188	1470	93
JUL						
07...	1215	17.0	4320	111	1300	76
AUG						
14...	1130	18.0	2800	92	696	92
SEP						
15...	1400	16.5	3040	50	410	93

PERIPHYTON ANAYLSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
OCT							
18...	1130	34	3.94	2.91	16.0	.580	64.4

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO JUNE 1980

DATE	NOV 9,79	MAR 17,80	MAY 23,80	JUN 16,80
TIME	1630	1300	1200	1430
TOTAL CELLS/ML	290	1200	580	580
DIVERSITY: DIVISION	0.7	0.9	1.3	0.7
.CLASS	0.7	0.9	1.3	0.7
..ORDER	1.0	1.5	1.9	0.8
...FAMILY	2.4	3.1	2.6	2.6
....GENUS	2.4	3.4	2.8	2.6

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...MICRACTINIACEAE								
....GOLENKINIA	--	-	--	-	13	2	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	14	1	26	4	13	2
....DICTYOSPHAERIUM	--	-	--	-	52	9	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	--	-	100#	18	--	-
....SCENEDESMUS	58#	20	--	-	--	-	--	-
....TETRASTRUM	--	-	--	-	--	-	52	9
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	14	1	13	2	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	14	5	96	8	100#	18	13	2
....MELOSIRA	--	-	28	2	--	-	--	-
....STEPHANODISCUS	--	-	55	5	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	29	10	120	11	--	-	--	-
....COCCONEIS	--	-	28	2	--	-	120#	20
...CYMBELLACEAE								
....CYMBELLA	29	10	41	4	13	2	--	-
....EPITHEMIA	--	-	14	1	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	120	11	--	-	26	4
...FRAGILARIACEAE								
....FRAGILARIA	--	-	--	-	--	-	100#	18
....SYNEDRA	--	-	28	2	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	14	5	83	7	--	-	--	-
...NAVICULACEAE								
....NAVICULA	120#	40	190#	16	13	2	52	9
...NITZSCHIACEAE								
....NITZSCHIA	29	10	96	8	190#	33	190#	33
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	--	-	13	2
..HORMOGONALES								
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	230#	20	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	39	7	--	-
....TRACHELOMONAS	--	-	--	-	13	2	--	-

06294700 BIGHORN RIVER AT BIGHORN, MT--Continued

PHYTOPLANKTON ANALYSES, JULY 1980 TO SEPTEMBER 1980

DATE	JUL 7,80	AUG 14,80	SEP 15,80
TIME	1215	1130	1400
TOTAL CELLS/ML	1900	1900	790
DIVERSITY: DIVISION	1.2	1.0	0.6
.CLASS	1.2	1.0	0.6
..ORDER	1.2	1.4	1.3
...FAMILY	1.6	2.2	2.7
....GENUS	1.7	2.3	2.8

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	210	11	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	13	1	--	-	--	-
....OOCYSTIS	--	-	1100#	58	--	-
....TREUBARIA	--	-	13	1	--	-
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	180	10	100	13
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	--	-	64	3	26	3
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	90	5	120	15
....MELOSIRA	--	-	26	1	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	52	3	13	1	--	-
....COCCONEIS	39	2	--	-	26	3
....RHOICOSPHENIA	13	1	--	-	13	2
...CYMBELLACEAE						
....CYMBELLA	13	1	39	2	52	7
...DIATOMACEAE						
....DIATOMA	13	1	13	1	26	3
...FRAGILARIACEAE						
....FRAGILARIA	--	-	90	5	--	-
...GOMPHONEMATACEAE						
....GOMPHONEMA	26	1	--	-	26	3
...NAVICULACEAE						
....NAVICULA	39	2	150	8	270#	34
...NITZSCHIACEAE						
....NITZSCHIA	140	8	90	5	130#	16
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	13	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	13	1	--	-
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	1300#	70	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06294940 SARPY CREEK NEAR HYSHAM, MT

LOCATION (REVISED).--Lat 46°14'12", long 107°08'03", in NW¼SE¼SE¼ sec.30, T.6 N., R.37 E., Treasure County, Hydrologic Unit 10100001, on left bank 100 ft (30 m) upstream from bridge on FAS Route 415, 1.3 mi (2.1 km) upstream from Hysham Canal, 5.5 mi (8.8 km) southeast of Hysham, and at mile 11.0 (17.7 km).

DRAINAGE AREA.--453 mi^2 (1,173 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1973 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,680 ft (817 m), from topographic map.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. No gage height record Jan. 8 to Feb. 17. Diversions for irrigation of about 970 acres (3.93 km^2) above station.

AVERAGE DISCHARGE.--7 years, 8.62 ft^3/s (0.244 m^3/s), 6,250 acre-ft/yr (7.71 m^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 428 ft^3/s (12.1 m^3/s) Mar. 4, 1975, gage height, 12.43 ft (3.789 m); no flow at times most year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11 ft^3/s (0.31 m^3/s) Mar. 31, gage height, 4.30 ft (1.311 m), no peak above base of 100 ft^3/s (2.83 m^3/s); maximum gage height, 5.45 ft (1.661 m) Mar. 23 (backwater from ice); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	2.0	2.5	2.7	2.6	2.9	9.4	2.9	1.8	.24	.00	.00
2	.24	2.2	2.5	2.7	2.9	3.9	7.9	2.5	2.1	.09	.00	.00
3	.32	2.3	2.5	2.6	2.8	3.6	7.6	2.5	3.4	.04	.00	.00
4	.50	2.3	2.7	2.6	2.8	3.0	7.6	2.2	2.8	.00	.00	.00
5	.64	2.3	2.5	2.6	2.6	3.5	6.8	2.1	1.9	.00	.00	.00
6	.64	2.4	3.2	2.5	2.4	4.0	5.3	1.9	1.5	.03	.00	.00
7	.79	2.3	3.2	2.3	2.3	4.0	4.1	1.7	1.4	.09	.00	.00
8	.79	2.3	2.7	2.0	2.3	4.1	4.3	1.3	1.7	.06	.00	.00
9	.96	2.3	2.8	1.9	2.4	4.5	3.7	1.4	1.9	.00	.00	.00
10	.96	2.3	2.7	2.0	2.4	4.2	3.9	.32	1.4	.00	.00	.00
11	.96	2.5	2.7	1.8	2.4	5.0	2.8	.13	1.1	.00	.00	.00
12	1.0	2.5	3.4	2.2	2.2	6.0	2.2	.09	.96	.00	.00	.00
13	1.2	2.7	3.0	2.9	2.0	6.5	1.7	.02	1.1	.00	.00	.00
14	1.2	2.4	2.9	3.2	2.0	7.0	1.6	.06	.79	.00	.00	.00
15	1.2	2.4	2.6	3.0	1.9	7.2	2.3	.79	.72	.00	.00	.00
16	1.4	2.4	2.1	2.8	1.9	7.4	3.0	.32	1.1	.00	.00	.00
17	1.5	2.4	2.4	2.7	2.2	7.6	1.8	.09	1.3	.00	.00	.00
18	1.6	2.7	2.5	2.6	2.4	7.6	1.2	1.0	1.3	.00	.00	.00
19	1.6	2.8	2.5	2.4	2.7	7.6	2.5	2.2	2.5	.00	.00	.00
20	1.5	2.9	2.5	2.5	2.6	7.8	3.3	1.5	2.8	.00	.00	.00
21	1.4	2.8	2.7	2.6	2.6	8.0	3.2	.87	2.5	.00	.00	.00
22	1.5	2.8	2.7	2.7	2.6	8.2	5.0	.00	1.8	.00	.00	.00
23	1.5	2.7	2.7	2.7	2.7	8.6	5.5	.71	1.5	.00	.00	.00
24	1.6	2.7	2.7	2.7	2.8	6.8	5.0	.44	1.2	.00	.00	.00
25	1.7	2.7	2.7	2.5	3.2	6.8	2.3	.38	.96	.00	.00	.00
26	1.7	2.7	2.7	2.3	3.6	7.0	1.2	1.0	.87	.00	.00	.00
27	1.8	2.8	2.7	2.1	4.0	7.5	1.2	1.3	.79	.00	.00	.00
28	1.8	2.7	2.7	2.0	3.4	7.9	.38	1.4	.50	.00	.00	.00
29	1.8	2.6	2.6	1.9	3.1	7.9	.38	1.8	.38	.00	.00	.00
30	1.9	2.6	2.6	2.0	---	7.4	1.7	1.5	.32	.00	.00	.00
31	1.9	---	2.6	2.1	---	9.7	---	1.4	---	.00	.00	---
TOTAL	37.73	75.5	83.3	75.6	75.8	193.2	108.86	35.82	44.39	.55	.00	.00
MEAN	1.22	2.52	2.69	2.44	2.61	6.23	3.63	1.16	1.48	.018	.000	.000
MAX	1.9	2.9	3.4	3.2	4.0	9.7	9.4	2.9	3.4	.24	.00	.00
MIN	.13	2.0	2.1	1.8	1.9	2.9	.38	.00	.32	.00	.00	.00
AC-FT	75	150	165	150	150	383	216	71	88	1.1	.00	.00

CAL YR 1979 TOTAL 5884.96 MEAN 16.1 MAX 385 MIN .13 AC-FT 11670
WTR YR 1980 TOTAL 730.75 MEAN 2.00 MAX 9.7 MIN .00 AC-FT 1450

06294940 SARPY CREEK NEAR HYSHAM, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

REMARKS.--Scheduled sampling were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 19...	1400	1.7	61	2550	8.2	17.0	10.0	6.6	66	520	45	76
DEC 13...	1600	3.1	3	2440	8.2	2.0	.5	11.7	89	640	97	100
JAN 10...	1115	2.0	83	3300	7.8	-15.0	.5	10.0	78	1000	260	140
FEB 18...	1600	2.4	1	2520	8.0	6.0	.0	10.7	82	660	130	110
MAR 17...	1615	7.5	1	2300	8.4	11.0	1.0	12.2	94	700	330	97
APR 14...	1745	1.4	1	2900	8.3	18.0	11.0	9.7	97	900	420	130
MAY 23...	0900	1.1	0	3150	8.3	22.5	17.5	6.5	75	830	330	100
JUN 16...	1745	1.3	1	2470	8.3	28.0	20.0	8.9	106	540	220	68

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 19...	79	370	7.1	9.4	470	850	17	.4	.1	.00	12	1700
DEC 13...	94	360	6.2	7.0	540	890	14	.4	--	--	14	1800
JAN 10...	160	540	7.4	5.3	750	1300	20	.6	.1	.00	15	2630
FEB 18...	93	410	7.0	6.7	530	950	14	.4	--	--	17	1920
MAR 17...	110	290	4.8	8.5	370	880	11	.3	--	--	8.2	1630
APR 14...	140	420	6.1	8.3	480	1200	14	.4	.1	.00	6.9	2210
MAY 23...	140	470	7.1	10	500	1400	17	.5	.2	--	6.6	2450
JUN 16...	89	370	7.0	10	320	920	14	.5	--	--	2.4	1670

06294940 SARPY CREEK NEAR HYSHAM, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 19...	2.31	7.80	.00	.02	.74	.76	.04	18	.4	350	80
DEC 13...	2.45	15.1	.04	.01	.85	.86	.02	--	--	280	40
JAN 10...	3.58	14.2	.08	.04	.26	.30	.02	19	.4	450	30
FEB 18...	2.61	12.4	.14	.10	.71	.81	.01	--	--	280	20
MAR 17...	2.22	33.0	.03	.02	1.1	1.1	.01	--	--	310	50
APR 14...	3.01	8.35	.02	.00	.92	.92	.06	15	.6	380	40
MAY 23...	3.33	7.28	.03	.06	.62	.68	.06	17	--	510	30
JUN 16...	2.27	5.86	.10	.01	.60	.61	.00	--	--	310	20

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAY 23...	0900	3	2	0	0	0	1	0

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAY 23...	0	4	0	480	2	1	220	180

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY 23...	.3	.0	10	0	1	1	20	10

06294940 SARPY CREEK NEAR HYSHAM, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
19...	1400	10.0	1.7	78	.36
DEC					
13...	1600	.5	3.1	79	.66
JAN					
10...	1115	.5	2.0	87	.47
FEB					
18...	1600	.0	2.4	62	.40
MAR					
17...	1615	1.0	7.5	35	.71
APR					
14...	1745	11.0	1.4	102	.39
MAY					
23...	0900	17.5	1.1	29	.09
JUN					
16...	1745	20.0	1.3	55	.19

06294950 STARVED TO DEATH CREEK NEAR SANDERS, MT

LOCATION.--Lat 46°19'55", long 107°03'17", in SE¼SW¼NE¼ sec.26, T.7 N., R.37 E., Treasure County, Hydrologic Unit 10100001, on right bank at county bridge 1.1 mi (1.8 km) upstream from Yellowstone River, 3.6 mi (5.8 km) northeast of Sanders, and 4.7 mi (7.6 km) southwest of Vananda, MT.
DRAINAGE AREA.--36.9 mi² (95.6 km²).
PERIOD OF RECORD.--June 1979 to current year.
GAGE.--Nonrecording gage and crest-stage gage. Altitude of gage is 2,620 ft (799 m), from topographic map.
REMARKS.--Records poor.
EXTREMES FOR CURRENT PERIOD.--June to September 1979: Maximum discharge observed during period, 33 ft³/s (0.93 m³/s) July 26, gage height, 2.24 ft (0.683 m); no flow most days.
Water year 1980: Maximum discharge observed, 225 ft³/s (6.37 m³/s) June 15, gage height, 4.60 ft (1.402 m); no flow most days.

DISCHARGE, IN CUBIC FEET PER SECOND, JUNE TO SEPTEMBER 1979

DAY	JUNE	JULY	AUG	SEPT	DAY	JUNE	JULY	AUG	SEPT	DAY	JUNE	JULY	AUG	SEPT
1	.34	.49	.00	.00	11	.00	.00	.00	.00	21	.11	.00	.00	.00
2	.23	.00	.00	.00	12	.00	.00	.00	.00	22	.06	.00	.00	.00
3	.06	.00	.00	.00	13	.00	.00	.00	.00	23	.00	.00	.00	.00
4	.00	.00	.00	.00	14	.00	.00	.00	.00	24	.00	.00	.00	.00
5	.00	.00	.00	.00	15	.00	.00	.00	.00	25	.00	.29	.00	.00
6	.08	.00	.00	.00	16	.00	.00	.00	.00	26	.00	2.2	.00	.00
7	2.1	.54	.00	.00	17	.00	.00	.00	.00	27	2.2	.11	.00	.00
8	.29	.06	.00	.00	18	.00	.00	.00	.00	28	1.7	.00	.00	.00
9	.29	4.6	.00	.00	19	1.6	.00	.00	.00	29	.06	.00	.00	.00
10	.06	.14	.00	.00	20	1.3	.00	.00	.00	30	.00	.00	.00	.00
										31	---	.00	.00	---

	JUNE	JULY	AUG	SEPT
TOTAL	10.48	8.43	.00	.00
MEAN	.35	.27	.00	.00
MAX	2.2	4.6	.00	.00
MIN	.00	.00	.00	.00
AC-FT	21	17	.00	.00

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.29	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.11	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	3.1	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.10	.00	.00	4.5	.00	.00	.00
13	.00	.00	.00	.00	.00	.04	.00	.00	11	.00	.00	.00
14	.00	.00	.00	.00	.00	.01	.00	.00	.40	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	53	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	7.1	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	1.1	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.34	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.23	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	1.3	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.29	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	26	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	2.0	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.59	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.20	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.59	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	6.1	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.16	.00	35.51	79.78	3.10	.00	.00
MEAN	.000	.000	.000	.000	.000	.005	.000	1.15	2.66	.10	.000	.000
MAX	.00	.00	.00	.00	.00	.10	.00	26	53	3.1	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.3	.00	70	158	6.1	.00	.00

WTR YR 1980 TOTAL 118.55 MEAN .32 MAX 53 MIN .00 AC-FT 235

06294980 EAST FORK ARMELLS CREEK NEAR COLSTRIP, MT

LOCATION.--Lat 45°58'42", long 106°38'38", in SE¼SW¼SW¼ sec.28, T.3 N., R.41 E., Rosebud County, Hydrologic Unit 10100001, on private road bridge, 0.9 mi (1.4 km) downstream from Corral Creek, and 6.7 mi (10.8 km) north of Colstrip.

DRAINAGE AREA.--97.3 mi^2 (252.0 km^2) revised.

PERIOD OF RECORD.--Water years 1975 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 18...	1700	.83	1	5600	8.3	13.0	12.0	8.8	92	2400	2000	230
DEC 11...	1025	.46	0	4500	8.0	-3.0	.5	10.2	78	2100	1900	190
JAN 09...	1000	.49	3	5550	7.7	-10.0	.0	8.3	64	2600	2000	220
FEB 22...	0830	1.3	71	4010	7.9	-4.0	.0	9.5	72	2200	1800	220
MAR 19...	0830	2.3	1	3850	8.1	5.0	1.0	11.0	87	2000	1600	210
APR 16...	1600	.80	1	4730	8.2	20.0	15.0	10.5	114	2400	1900	270
MAY 21...	1200	E.04	1	5470	8.2	38.0	22.0	10.2	129	2300	1900	210
JUN 17...	1200	4.1	1	2590	8.0	29.0	19.5	6.4	77	1500	1300	180

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 18...	440	450	4.0	23	420	2800	56	.2	.2	.00	9.9	4260
DEC 11...	390	410	3.9	16	180	2700	51	.3	.2	.00	12	3880
JAN 09...	500	520	4.4	16	640	3000	58	.3	.3	.01	17	4700
FEB 22...	390	350	3.3	15	400	2300	45	.3	--	--	17	3580
MAR 19...	350	330	3.2	13	370	2200	38	.2	--	--	11	3380
APR 16...	410	370	3.3	16	430	2600	43	.3	.4	.00	3.5	3970
MAY 21...	430	600	5.5	16	420	3000	45	.2	.3	.01	3.3	4560
JUN 17...	250	260	2.9	15	160	1700	24	.3	--	--	6.1	2530

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 18...	5.79	9.55	.00	.08	.87	.95	.04	15	.2	1200	30
DEC 11...	5.28	4.82	.87	.19	.91	1.1	.03	21	--	940	70
JAN 09...	6.39	6.22	1.6	.38	.92	1.3	.05	29	.4	1100	40
FEB 22...	4.87	12.6	2.4	.39	1.1	1.5	.07	--	--	840	30
MAR 19...	4.60	21.0	.90	.52	1.1	1.6	.09	--	--	700	40
APR 16...	5.40	8.58	.03	.00	1.1	1.1	.07	23	.6	940	30
MAY 21...	6.20	E.49	.47	.04	.78	.82	.02	20	.4	880	30
JUN 17...	3.44	28.0	.21	.03	.91	.94	.07	--	--	680	50

06294980 EAST FORK ARMELLS CREEK NEAR COLSTRIP, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)
DEC 11...	1025	2	1	0	0	0	1	20	0	4	0	560
MAY 21...	1200	2	2	0	0	0	1	10	0	5	1	180

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
DEC 11...	4	0	240	180	.0	.0	8	8	1	1	30	20
MAY 21...	2	0	90	60	--	.0	7	1	0	0	40	20

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER- ATURE, WATER (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
OCT 18...	1700	12.0	.83	52	.12
DEC 11...	1025	.5	.46	20	.02
JAN 09...	1000	.0	.49	24	.03
FEB 22...	0830	.0	1.3	46	.16
MAR 19...	0830	1.0	2.3	16	.10
Apr 16...	1600	15.0	.80	98	.21
MAY 21...	1200	22.0	E.04	8	.00
JUN 17...	1200	19.5	4.1	5	.06

06294995 ARMELLS CREEK NEAR FORSYTH, MT

LOCATION.--Lat 46°14'59", long 106°48'22", in SE¼NW¼NE¼ sec.26 T.6 N., R.39 E., Rosebud County, Hydrologic Unit 10100001, on right bank 300 ft (90 m) upstream from bridge on Interstate Highway I-94, 2.2 mi (3.5 km) upstream from mouth, and 6 mi (10 km) southwest of Forsyth.

DRAINAGE AREA.--370 mi^2 (958 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,560 ft (780 m), from topographic map.

REMARKS.--Water-discharge records poor. Diversions for irrigation of about 200 acres (809,000 m^2) above station.

AVERAGE DISCHARGE.--6 years, 8.39 ft^3/s (0.238 m^3/s) 6,080 acre-ft/yr (7.50 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 960 ft^3/s (27.2 m^3/s) Mar. 13, 1979; maximum gage height observed, 6.62 ft (2.018 m) Mar. 12, 1978 (backwater from ice); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined; maximum gage height, 3.32 ft (1.012 m) Mar. 21 (backwater from ice); no peaks above base of 130 ft^3/s (3.68 m^3/s); no flow on many days July to September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.40	.18	.23	.35	.70	1.6	.40	1.4	.02	.01	.03
2	.10	.47	.18	.22	.45	.90	1.6	.40	1.9	.02	.10	.00
3	.10	.47	.19	.25	.40	.70	1.4	.34	1.7	.01	.02	.00
4	.10	.40	.19	.20	.42	.55	1.2	.34	.17	.01	.01	.00
5	.10	.40	.19	.20	.35	.40	1.2	.34	.12	.01	.01	.00
6	.10	.40	.19	.14	.35	.60	1.3	.29	.10	.01	.01	.02
7	.10	.40	.19	.08	.30	.80	1.3	.29	.10	.01	.01	.00
8	.10	.40	.19	.04	.25	.80	1.3	.29	.04	.01	.01	.00
9	.10	.40	.19	.02	.30	1.0	1.2	.23	.04	.01	.00	.00
10	.10	.55	.25	.06	.25	.80	1.2	.23	.03	.01	.00	.00
11	.10	1.0	.20	.06	.20	1.1	1.2	.23	.03	.01	.00	.00
12	.10	.40	.20	.40	.22	1.1	1.2	.15	.03	.01	.00	.02
13	.10	.40	.25	.50	.21	1.5	1.0	.19	.04	.01	.00	.04
14	.12	.34	.35	.45	.18	2.5	1.0	.19	.04	.00	.00	.07
15	.12	.29	.35	.40	.12	2.2	.92	.15	.19	.00	.00	.06
16	.15	.29	.10	.37	.10	2.0	.92	.15	.23	.00	.19	.04
17	.19	.29	.20	.40	.20	2.5	.92	.15	.15	.08	.23	.01
18	.19	.29	.25	.35	.30	2.6	.79	.12	.29	.01	.00	.00
19	.15	.29	.30	.20	.40	2.4	.79	.12	1.3	.00	.00	.01
20	.29	.34	.17	.22	.40	2.4	.79	.10	.40	.00	.00	.03
21	.55	.33	.18	.35	.40	2.3	.79	.08	.47	.00	.04	.03
22	.55	.30	.18	.40	.45	2.2	.79	.08	.23	.00	.00	.02
23	.55	.32	.18	.50	.50	2.0	.67	.08	.12	.00	.00	.03
24	.47	.34	.16	.35	.52	1.2	.97	.08	.10	.00	.02	.03
25	.47	.34	.17	.25	.60	2.6	.40	.10	.06	.00	.01	.04
26	.47	.34	.22	.14	.70	2.3	.79	.10	.04	.00	.00	.04
27	.47	.30	.21	.10	.90	2.3	.23	.10	.03	.00	.00	.04
28	.47	.14	.21	.10	1.2	2.2	.34	.12	.02	.00	.12	.04
29	.47	.12	.20	.12	1.5	2.0	.47	.29	.02	.00	.19	.00
30	.47	.14	.18	.20	---	2.0	.40	.92	.02	.00	.04	.02
31	.47	---	.16	.25	---	1.9	---	1.6	---	.00	.08	---
TOTAL	7.92	10.89	6.36	7.55	12.52	50.55	28.68	8.25	9.41	.24	1.10	.62
MEAN	.26	.36	.21	.24	.43	1.63	.96	.27	.31	.008	.035	.021
MAX	.55	1.0	.35	.50	1.5	2.6	1.6	1.6	1.9	.08	.23	.07
MIN	.10	.12	.10	.02	.10	.40	.23	.08	.02	.00	.00	.00
AC-FT	16	22	13	15	25	100	57	16	19	.5	2.2	1.2

CAL YR 1979 TOTAL 4637.50 MEAN 12.7 MAX 750 MIN .00 AC-FT 9200
WTR YR 1980 TOTAL 144.09 MEAN .39 MAX 2.6 MIN .00 AC-FT 286

06294995 ARMELLS CREEK NEAR FORSYTH, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

REMARKS.--Scheduled samplings not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT 19...	1130	.14	53	4830	8.9	14.0	10.0	8.5	85	510	0	48
DEC 11...	1345	.57	0	5000	8.3	1.0	.5	11.4	86	670	36	69
JAN 07...	1315	.39	1	6000	8.1	-12.0	.5	10.7	81	930	45	94
FEB 19...	1515	.66	1	5400	8.1	6.0	.0	10.3	78	880	400	120
MAR 19...	1130	2.6	1	3850	8.4	9.0	1.5	11.9	93	700	280	100
APR 16...	1400	.94	0	4900	8.4	19.0	17.0	9.4	105	920	400	120
MAY 21...	0930	E.08	0	4650	8.2	25.0	19.0	6.9	81	740	160	98
JUN 17...	0945	.14	0	5000	8.7	23.0	21.0	7.9	96	620	160	51
SEP 16...	1345	.03	0	3440	8.5	17.5	20.0	12.3	147	520	42	72

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
OCT 19...	95	1000	19	10	620	2000	34	.6	.2	.00	3.9	3570
DEC 11...	120	1100	19	8.7	630	2300	27	.5	--	--	7.3	4010
JAN 07...	170	1400	20	7.9	890	2800	35	.7	.2	.00	9.5	5050
FEB 19...	140	1100	16	9.2	480	2500	28	.6	--	--	13	4200
MAR 19...	110	710	12	8.5	420	1800	21	.3	--	--	5.6	3010
APR 16...	150	880	13	9.3	520	2100	23	.5	.1	.00	3.4	3600
MAY 21...	120	960	15	11	580	2000	25	.5	.2	.00	7.7	3570
JUN 17...	120	1100	19	12	460	2300	29	.7	--	--	1.8	3890
SEP 16...	83	690	13	10	470	1500	22	.5	.0	.00	6.8	2670

06294995 ARMELLS CREEK NEAR FORSYTH, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 19...	4.86	1.35	.05	.04	.78	.82	.02	14	.4	630	30
DEC 11...	5.45	6.17	.08	.01	.65	.66	.02	--	--	530	60
JAN 07...	6.87	5.32	.26	.04	2.7	2.7	.02	18	.4	730	90
FEB 19...	5.71	7.48	.47	.11	.50	.61	.01	--	--	590	30
MAR 19...	4.09	21.1	.01	.04	2.5	2.5	.03	--	--	380	20
APR 16...	4.90	9.14	.04	.00	.94	.94	.05	28	.4	560	40
MAY 21...	4.86	8.77	.06	.04	.72	.76	.03	11	.7	570	30
JUN 17...	5.29	1.47	.15	.03	.77	.80	.01	--	--	630	30
SEP 16...	3.63	.18	.00	.02	.74	.76	.02	8.6	.7	480	30

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAY 21...	0930	2	2	0	0	0	1	0
SEP 16...	1345	2	2	0	0	0	0	0

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAY 21...	0	4	2	280	2	0	200	150
SEP 16...	0	11	0	300	3	1	220	50

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY 21...	.1	.0	8	1	0	0	30	10
SEP 16...	.0	.0	7	3	0	0	40	10

06294995 ARMELLS CREEK NEAR FORSYTH, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
19...	1130	10.0	.14	47	.02
DEC					
11...	1345	.5	.57	69	.11
JAN					
07...	1315	.5	.39	145	.15
FEB					
19...	1515	.0	.66	50	.09
MAR					
19...	1130	1.5	2.6	51	.36
APR					
16...	1400	17.0	.94	87	.22
MAY					
21...	0930	19.0	E.08	28	.01
JUN					
17...	0945	21.0	.14	25	.01
SEP					
16...	1345	20.0	.03	18	.00

06295000 YELLOWSTONE RIVER AT FORSYTH, MT

LOCATION.--Lat 46°15'58", long 106°41'24", in NE¼NW¼NW¼ sec.23, T.6 N., R.40 E., Rosebud County, Hydrologic Unit 10100001, on right bank 0.3 mi (0.5 km) downstream from U.S. Highway 12 bridge, at intake for Forsyth water supply, at Forsyth, and at mile 238.2 (383.3 km), revised.

DRAINAGE AREA.--40,339 mi^2 (104,478 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 16, 1921, to September 30, 1923 (no winter records). October 1977 to current year. Miscellaneous discharge measurements were made in 1974 to 1976 and are in files of Helena district office.

GAGE.--Water-stage recorder. Altitude of gage is 2,510 ft (765 m), from topographic map. July 1921 to March 1922, nonrecording gage on discontinued highway bridge 10 ft (0.3 m) downstream from gage at different datum. March 1922 to September 1923, nonrecording gage on discontinued highway bridge 10 ft (0.3 m) downstream from gage at datum 2 ft (0.6 m) higher.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Diversions for irrigation of about 838,000 acres (3,390 km^2) above station. Flow regulated to some extent by Bighorn Lake, usable capacity, 1,356,000 acre-ft (1.67 km^3), on Bighorn River. Small diversion dam about 4,200 ft (1,280 m) below station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 106,000 ft^3/s (3,002 m^3/s), revised, May 21, 1978, gage height, 14.53 ft (4.429 m); minimum daily, 1,400 ft^3/s (39.6 m^3/s) Nov. 23, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1918 reached a stage of about 20 ft (6.1 m), datum used in 1921, information from local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33,700 ft^3/s (954 m^3/s) May 25, gage height, 6.91 ft (2.106 m); minimum daily, 2,500 ft^3/s (70.8 m^3/s) Jan. 11, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4890	4710	5400	5980	4700	10000	6910	12300	19700	20300	7440	6650
2	4990	4480	5600	5660	5000	9500	7170	12900	19200	19900	7300	6650
3	4950	4330	5800	6020	6000	8500	7090	14100	19200	20100	7260	6530
4	4980	4220	6000	6110	6200	7500	7130	14400	18900	19900	7130	6480
5	5060	4150	7000	6000	6400	6500	7170	14600	18300	20500	7130	6480
6	5110	4330	6780	5000	6400	6000	7130	15000	17900	20700	7000	6440
7	5030	4520	6400	5000	6200	6000	7130	14700	17600	18700	6650	6360
8	4980	4520	6230	2800	6100	7000	7350	15600	17800	17800	6190	6070
9	5060	4450	6110	2600	5900	8000	7610	16800	17600	17300	6110	6020
10	5220	4370	6000	3600	5800	9000	7930	17000	17100	16900	6020	6270
11	5370	4630	6000	2500	5800	9700	8430	17800	18000	17100	6020	6570
12	5410	5940	5900	3000	6000	9500	8480	20400	21400	16600	5940	6870
13	5450	5940	5800	4000	6000	10000	8660	18000	25800	15800	5780	7220
14	5490	5980	5800	5400	5800	9460	8710	15400	28400	15100	5740	8990
15	5490	5820	5600	5800	5400	7930	8660	13600	29000	14400	6070	10300
16	5450	5740	4500	7000	5200	7880	8940	12200	29200	14300	6360	10500
17	5450	5780	3400	7100	5600	7660	9560	11400	29300	13400	7040	10300
18	5900	5780	4500	7000	6000	7000	9890	11200	28100	13200	7220	9940
19	5900	5740	5800	6000	6400	6780	10100	12100	27200	13000	7040	9850
20	5860	5820	7000	5000	7000	6780	10300	13100	28500	12300	7170	9940
21	5700	5860	7800	6000	8000	6830	10800	14100	30900	12100	7170	10600
22	5860	5700	8300	6000	9000	6780	11700	17300	32200	11600	7220	10900
23	6070	5370	8200	6600	11000	6830	12300	24600	32900	11100	7220	10800
24	6070	5260	7800	7000	13000	6830	11800	30100	31400	10800	7130	10700
25	6020	5370	7400	6500	14000	6740	11400	33100	29200	10400	7000	10500
26	5900	5490	6480	6000	11000	6780	11600	33200	26500	10000	6740	10500
27	5860	5330	6110	5200	9000	6780	12400	32400	24800	9990	6400	10400
28	4600	5260	6020	4700	9200	6610	12700	26700	24900	9850	6320	10200
29	4220	5260	5900	4500	9400	6570	12600	22700	24600	9180	6360	9990
30	4520	5200	5700	4300	---	6570	12400	20600	21800	8430	6650	9850
31	4790	---	5820	4500	---	6530	---	20100	---	7700	6650	---
TOTAL	165650	155350	191150	162870	211500	234540	284050	567500	727400	448450	207470	258870
MEAN	5344	5178	6166	5254	7293	7566	9468	18310	24250	14470	6693	8629
MAX	6070	5980	8300	7100	14000	10000	12700	33200	32900	20700	7440	10900
MIN	4220	4150	3400	2500	4700	6000	6910	11200	17100	7700	5740	6020
AC-FT	328600	308100	379100	323100	419500	465200	563400	1126000	1443000	889500	411500	513500

CAL YR 1979 TOTAL 3847590 MEAN 10540 MAX 35400 MIN 3400 AC-FT 7632000
WTR YR 1980 TOTAL 3614800 MEAN 9877 MAX 33200 MIN 2500 AC-FT 7170000

06295000 YELLOWSTONE RIVER AT FORSYTH, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: March 1978 to current year.

REMARKS.--Once-daily water temperatures are available in the District office. Because of the limited number of samples obtained no record was published for period Feb. 1 to May 18.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,010 mg/L May 19, 1978; minimum daily mean observed, 5 mg/L Dec. 23, 1979.
SEDIMENT LOADS: Maximum daily, 761,000 tons (690,000 megagrams) May 20, 1978; minimum daily, 96 tons (87 megagrams) Nov. 9, 1979.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 520 mg/L June 1; minimum daily mean observed, 5 mg/L Dec. 23.
SEDIMENT LOADS: Maximum daily, 36,800 tons (33,400 megagrams) May 27; minimum daily, 96 tons (87 megagrams) Nov. 9.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
OCT											
16...	1430	5450	1	701	8.7	16.5	14.0	9.7	101	250	89
NOV											
28...	0930	5490	1	828	8.6	-10.0	.0	13.3	96	300	120
JAN											
03...	1200	6340	1	851	8.5	8.0	2.5	12.7	103	300	130
23...	1100	6600	3	790	8.3	8.0	.5	11.7	88	290	130
FEB											
20...	1330	7840	3	890	8.3	5.0	.0	11.8	89	330	160
MAR											
18...	1230	7210	1	848	8.3	13.0	4.0	11.5	96	290	140
APR											
15...	1400	8690	51	895	8.4	12.5	11.0	9.6	94	290	110
MAY											
20...	1715	13400	0	390	8.2	31.0	18.5	8.2	95	130	39
28...	1200	25400	1	306	8.4	21.0	13.5	9.2	97	98	25
JUN											
18...	1300	28200	1	320	8.0	31.0	18.0	8.2	94	110	18
JUL											
08...	1015	17900	51	431	8.1	27.0	20.0	7.8	93	150	43
AUG											
12...	1700	6040	1	758	8.7	24.0	22.0	8.7	107	230	83
SEP											
16...	1100	10600	1	529	8.4	10.5	14.5	8.4	89	180	52

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
OCT											
16...	60	24	61	1.7	4.2	160	220	9.9	.5	7.5	483
NOV											
28...	74	28	72	1.8	4.1	180	260	15	.5	11	573
JAN											
03...	73	28	72	1.8	4.0	170	280	13	.5	11	584
23...	70	27	73	1.9	4.3	160	240	11	.4	12	534
FEB											
20...	81	30	85	2.1	4.2	170	300	13	.5	11	627
MAR											
18...	69	29	84	2.1	4.1	150	280	11	.4	11	579
APR											
15...	71	27	74	1.9	4.2	180	260	11	.5	10	566
MAY											
20...	33	12	32	1.2	2.5	93	88	5.1	.3	12	241
28...	25	8.6	21	.9	2.0	73	61	3.5	.2	11	176
JUN											
18...	27	9.7	23	1.0	2.1	89	70	3.8	--	11	200
JUL											
08...	38	14	35	1.2	2.7	110	110	5.9	.7	9.9	282
AUG											
12...	57	22	65	1.9	4.5	150	220	12	.6	8.7	480
SEP											
16...	45	17	44	1.4	3.7	130	130	7.4	.4	12	338

06295000 YELLOWSTONE RIVER AT FORSYTH, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 16...	.66	7110	.17	.02	.51	.53	.05	6.8	.4	180	< 10
NOV 28...	.78	8490	.34	.01	.49	.50	.01	--	--	180	< 10
JAN 03...	.79	10000	.55	.00	.98	.98	.01	--	--	170	< 10
23...	.73	9520	.59	.08	.64	.72	.05	6.5	.1	180	< 10
FEB 20...	.85	13300	.51	.10	.13	.23	.02	--	--	180	< 10
MAR 18...	.79	11300	.40	.18	.92	1.1	.02	--	--	170	< 10
APR 15...	.77	13300	.32	.06	.77	.83	.11	13	.9	160	30
MAY 20...	.33	8720	.18	.06	.70	.76	.25	--	--	90	< 10
28...	.24	12100	.19	.04	.38	.42	.30	6.2	--	60	10
JUN 18...	.27	15200	.18	.04	1.1	1.1	.20	--	--	70	< 10
JUL 08...	.38	13600	.14	.03	.56	.59	.08	4.7	--	120	10
AUG 12...	.65	7830	1.2	.06	.76	.82	.05	--	--	270	< 10
SEP 16...	.46	9670	.28	.04	.78	.82	.14	6.1	1.5	200	< 10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAY 28...	1200	6	3	0	< 1	2	1	0
SEP 16...	1100	8	6	0	< 1	0	< 1	10

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAY 28...	0	19	4	9000	13	2	260	4
SEP 16...	0	5	1	1700	1	0	80	2

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY 28...	.0	.0	15	1	1	1	50	< 3
SEP 16...	.0	.0	7	1	1	1	30	< 3

06295000 YELLOWSTONE RIVER AT FORSYTH, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 16...	1430	14.0	5450	41	603	--	--	--	--	--	84
JAN 03...	1200	2.5	6340	39	668	--	--	--	--	--	--
MAR 18...	1230	4.0	7210	159	3100	66	86	93	96	100	--
APR 15...	1400	11.0	8690	129	3030	--	--	--	--	--	88
MAY 20...	1715	18.5	13400	351	12700	64	82	89	93	100	--
JUN 18...	1300	18.0	28200	274	20900	--	--	--	--	--	78
JUL 08...	1015	20.0	17900	87	4200	--	--	--	--	--	63
AUG 12...	1700	22.0	6040	41	669	--	--	--	--	--	88
SEP 16...	1100	14.5	10600	116	3320	--	--	--	--	--	76

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	16	211	9	114	26	379	35	565	---	---	---	---
2	14	189	14	169	29	438	36	550	---	---	---	---
3	11	147	12	140	27	423	36	585	---	---	---	---
4	15	202	12	137	23	373	26	429	---	---	---	---
5	20	273	13	146	24	454	18	292	---	---	---	---
6	17	235	16	187	67	1230	43	580	---	---	---	---
7	15	204	18	220	130	2250	65	877	---	---	---	---
8	17	229	11	134	120	2020	51	386	---	---	---	---
9	17	232	8	96	106	1750	23	161	---	---	---	---
10	20	282	25	295	92	1490	80	778	---	---	---	---
11	28	406	23	288	76	1230	309	2090	---	---	---	---
12	21	307	58	930	61	972	471	3820	---	---	---	---
13	20	294	37	593	58	908	505	5450	---	---	---	---
14	22	326	36	581	66	1030	518	7550	---	---	---	---
15	20	296	36	566	72	1090	430	6730	---	---	---	---
16	27	397	22	341	72	875	347	6560	---	---	---	---
17	35	515	22	343	67	615	280	5370	---	---	---	---
18	34	542	18	281	42	510	232	4380	---	---	---	---
19	29	462	18	279	22	345	205	3320	---	---	---	---
20	25	396	22	346	17	321	221	2980	---	---	---	---
21	23	354	28	443	11	232	295	4780	---	---	---	---
22	26	411	33	508	7	157	455	7370	---	---	---	---
23	41	672	37	536	5	111	465	8290	---	---	---	---
24	36	590	37	525	9	190	391	7390	---	---	---	---
25	15	244	32	464	35	699	366	6420	---	---	---	---
26	12	191	23	341	22	385	359	5820	---	---	---	---
27	11	174	13	187	19	313	350	4910	---	---	---	---
28	12	149	12	170	30	488	328	4160	---	---	---	---
29	14	160	25	355	31	494	281	3410	---	---	---	---
30	11	134	16	225	32	492	212	2460	---	---	---	---
31	8	103	---	---	34	534	180	2190	---	---	---	---
TOTAL	---	9327	---	9940	---	22798	---	110653	---	---	---	---

06295000 YELLOWSTONE RIVER AT FORSYTH, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	---	---	---	---	520	27700	137	7510	90	1810	20	359
2	---	---	---	---	370	19200	132	7090	66	1300	31	557
3	---	---	---	---	285	14800	129	7000	69	1350	28	494
4	---	---	---	---	213	10900	126	6770	57	1100	46	805
5	---	---	---	---	155	7660	121	6700	96	1850	39	682
6	---	---	---	---	131	6330	118	6600	86	1630	125	2170
7	---	---	---	---	153	7270	114	5760	71	1270	285	4890
8	---	---	---	---	196	9420	108	5190	34	568	403	6600
9	---	---	---	---	248	11800	101	4720	46	759	443	7200
10	---	---	---	---	308	14200	97	4430	48	780	221	3740
11	---	---	---	---	368	17900	95	4390	41	666	183	3250
12	---	---	---	---	403	23300	116	5200	40	642	93	1730
13	---	---	---	---	396	27600	61	2600	34	531	112	2180
14	---	---	---	---	364	27900	98	4000	36	558	73	1770
15	---	---	---	---	322	25200	96	3730	44	721	67	1860
16	---	---	---	---	276	21800	99	3820	22	378	97	2750
17	---	---	---	---	267	21100	96	3470	24	456	46	1280
18	---	---	---	---	267	20300	77	2740	28	546	47	1260
19	---	---	347	11300	389	28600	88	3090	27	513	142	3780
20	---	---	353	12500	322	24800	78	2590	38	736	200	5370
21	---	---	379	14400	270	22500	54	1760	29	561	104	2980
22	---	---	426	19900	289	25100	35	1100	32	624	59	1740
23	---	---	318	21100	272	24200	36	1080	32	624	26	758
24	---	---	122	9910	192	16300	52	1520	27	520	40	1160
25	---	---	193	17200	167	13200	73	2050	26	491	69	1960
26	---	---	407	36500	206	14700	75	2030	30	546	93	2640
27	---	---	421	36800	144	9640	54	1460	27	467	149	4180
28	---	---	407	29300	123	8270	51	1360	19	324	85	2340
29	---	---	368	22600	135	8970	39	967	15	258	110	2970
30	---	---	282	15700	140	8240	38	865	20	359	86	2290
31	---	---	438	23800	---	---	76	1580	20	359	---	---
TOTAL	---	---	---	271010	---	518900	---	113172	---	23297	---	75745

TOTAL LOAD FOR YEAR: 1154842 TONS.

06295113 ROSEBUD CREEK AT RESERVATION BOUNDARY NEAR KIRBY, MT

LOCATION.--Lat 45°21'40", long 106°59'23", in NE¼NE¼SW¼ sec.36, T.5 S., R.38 E., Bighorn County, Hydrologic Unit 10100003, on right bank, 0.2 mi (0.3 km) upstream from Dry Creek, 0.5 mi (0.8 km) north of reservation boundary, 1.9 mi (3.1 km) downstream from Cache Creek, and 2.0 mi (3.2 km) north of Kirby.

DRAINAGE AREA.-- 102 mi^2 (264 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to September 1980.

GAGE.--Water-stage recorder. Altitude of gage is 3,780 ft (1,152 m), from topographic map.

REMARKS.--Water-discharge records poor. Numerous small diversions for irrigation above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 75 ft^3/s (2.12 m^3/s) Apr. 17, 1980, gage height, 4.45 ft (1.356 m), from floodmark; maximum gage height observed, 6.30 ft (1.920 m) Feb. 21, 1980 (backwater from ice); minimum daily discharge, 1.1 ft^3/s (0.031 m^3/s) Sept. 29, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of 231 ft^3/s (6.54 m^3/s) was measured May 9, 1978, at site 1.9 mi (3.1 km) upstream from present site. Flow was known to be higher during flood of May 19-21, 1978, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 75 ft^3/s (2.12 m^3/s) Apr. 17, gage height, 4.45 ft (1.356 m), from floodmark; maximum gage height observed, 6.30 ft (1.920 m) Feb. 21 (backwater from ice); minimum daily discharge, 1.1 ft^3/s (0.031 m^3/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.9	12	11	13	10	15	19	18	15	4.7	2.5	2.0
2	6.5	11	13	14	13	13	19	18	16	4.6	2.5	2.1
3	6.6	11	14	13	14	12	19	18	14	4.5	3.0	2.1
4	6.6	11	15	11	14	11	19	18	13	4.5	2.6	2.3
5	6.5	11	15	9.0	13	10	20	17	13	4.0	2.5	1.9
6	6.6	11	15	8.0	12	10	19	17	12	3.8	2.6	1.8
7	6.5	11	15	7.8	12	11	20	16	12	3.7	2.1	1.9
8	6.5	11	16	7.2	11	11	21	16	12	4.2	1.7	2.0
9	6.6	11	14	7.0	11	12	23	15	12	3.2	1.3	1.9
10	7.8	11	12	6.8	11	12	22	14	12	3.1	1.9	2.1
11	6.9	12	10	6.5	10	13	21	14	13	3.1	2.2	2.2
12	7.0	11	11	10	10	13	21	15	9.3	3.4	2.1	2.1
13	6.9	13	12	15	9.5	14	21	16	11	4.0	2.0	2.1
14	7.0	14	12	14	9.0	14	21	18	8.7	3.6	2.4	2.0
15	6.9	17	11	13	8.5	15	22	16	8.2	3.2	2.5	1.8
16	7.5	15	7.0	13	8.0	16	30	16	9.2	2.9	2.6	1.7
17	8.4	11	10	12	9.5	17	60	14	9.2	2.9	2.9	1.5
18	8.4	11	15	11	11	18	46	13	8.9	2.9	2.5	1.4
19	8.5	9.5	14	8.0	13	19	38	12	8.9	2.4	2.0	1.2
20	8.9	8.0	14	9.0	14	20	31	12	7.9	3.3	2.5	1.3
21	9.2	14	13	10	15	21	29	11	7.5	3.1	2.5	1.4
22	8.5	21	13	10	15	21	26	11	6.9	3.1	2.3	1.4
23	8.9	18	12	11	14	21	25	11	6.3	2.5	2.3	1.4
24	9.2	11	12	12	13	20	25	10	6.1	2.0	2.3	1.4
25	9.2	11	13	11	14	20	23	13	5.6	1.8	2.0	1.4
26	9.2	10	13	9.5	18	19	23	13	5.7	2.2	2.3	1.4
27	8.5	9.0	13	8.0	24	19	21	13	5.2	2.3	2.2	1.3
28	8.4	8.0	13	7.0	18	20	20	12	4.7	3.0	2.1	1.2
29	10	8.0	12	7.5	16	18	19	12	4.6	2.0	2.0	1.1
30	12	9.0	12	8.0	---	17	18	13	4.5	1.8	2.0	1.4
31	13	---	13	9.0	---	19	---	13	---	2.1	2.4	---
TOTAL	248.6	351.5	395.0	311.3	370.5	491	741	445	282.4	97.9	70.8	50.8
MEAN	8.02	11.7	12.7	10.0	12.8	15.8	24.7	14.4	9.41	3.16	2.28	1.69
MAX	13	21	16	15	24	21	60	18	16	4.7	3.0	2.3
MIN	5.9	8.0	7.0	6.5	8.0	10	18	10	4.5	1.8	1.3	1.1
AC-FT	493	697	783	617	735	974	1470	883	560	194	140	101

WTR YR 1980 TOTAL 3855.8 MEAN 10.5 MAX 60 MIN 1.1 AC-FT 7650

06295113 ROSEBUD CREEK AT RESERVATION BOUNDARY, NEAR KIRBY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1979 to September 1980.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 01...	1405	6.7	1	950	8.3	21.0	11.5	9.0	94	430	160	68
DEC 10...	1230	12	76	980	8.2	-.5	.0	11.6	92	480	190	75
JAN 14...	1305	14	2	950	8.1	8.0	.0	11.2	89	500	86	80
MAR 20...	1545	20	1	810	8.2	2.0	4.5	10.7	95	450	100	73
APR 18...	0950	43	1	688	8.3	23.0	8.0	8.7	84	330	79	56
MAY 23...	1230	9.7	0	890	8.4	26.0	18.5	8.0	99	490	100	74
JUN 16...	1145	9.2	1	900	8.4	18.5	15.0	8.1	91	470	100	68
JUL 25...	1005	1.8	51	932	8.3	15.5	19.0	6.7	82	460	40	67
SEP 08...	1045	1.8	51	1040	8.2	9.0	14.0	6.8	74	480	210	72

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 01...	64	30	.6	8.8	270	180	22	.7	.1	.00	15	551
DEC 10...	71	27	.5	2.3	290	190	3.9	.6	--	--	17	561
JAN 14...	72	31	.6	8.3	410	160	4.1	1.0	--	--	20	623
MAR 20...	65	26	.5	7.6	350	150	3.2	.4	--	--	15	551
APR 18...	46	15	.4	6.2	250	120	2.1	.5	.0	.01	12	408
MAY 23...	75	32	.6	7.8	390	150	3.9	.6	.0	.00	14	592
JUN 16...	73	31	.6	7.7	370	140	3.4	.6	--	--	14	560
JUL 25...	71	38	.8	8.8	420	150	4.8	.8	--	--	14	607
SEP 08...	74	39	.8	9.4	420	180	88	.8	.0	.00	16	642

06295113 ROSEBUD CREEK AT RESERVATION BOUNDARY, NEAR KIRBY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 01...	.75	9.97	.01	.04	.51	.55	.03	4.5	.7	120	40
DEC 10...	.76	18.2	.21	.03	.55	.58	.01	--	--	100	10
JAN 14...	.85	23.5	.36	.14	1.1	1.2	.11	--	--	90	20
MAR 20...	.75	29.8	.20	.12	1.3	1.4	.12	--	--	100	40
APR 18...	.55	47.4	.23	.22	1.5	1.7	.33	6.4	--	80	20
MAY 23...	.81	15.5	.02	.04	.88	.92	.11	6.5	1.9	110	20
JUN 16...	.76	13.9	.02	.08	.62	.70	.09	--	--	120	10
JUL 25...	.83	2.95	.00	.00	1.0	1.0	.08	--	--	110	10
SEP 08...	.87	3.12	.00	.02	1.2	1.2	.09	8.1	.4	130	10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAY 23...	1230	2	2	0	< 1	5	2	0
SEP 08...	1045	3	3	0	< 1	0	< 1	0

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAY 23...	0	11	4	1400	6	0	1200	50
SEP 08...	3	12	3	1400	2	2	80	20

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY 23...	.4	.0	20	0	1	1	40	10
SEP 08...	.0	.0	24	3	1	1	40	8

06295113 ROSEBUD CREEK AT RESERVATION BOUNDARY, NEAR KIRBY, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER- ATURE, WATER (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
DEC						
10...	1230	.0	12	39	1.3	--
JAN						
14...	1305	.0	14	140	5.3	--
MAR						
20...	1545	4.5	20	94	5.1	--
APR						
18...	0950	8.0	43	463	54	98
MAY						
23...	1230	18.5	9.7	106	2.8	98
JUN						
16...	1145	15.0	9.2	142	3.5	96
JUL						
25...	1005	19.0	1.8	83	.40	--
SEP						
08...	1045	14.0	1.8	91	.44	--

06295250 ROSEBUD CREEK NEAR COLSTRIP, MT

LOCATION.--Lat 45°46'03", long 106°34'10", in SE¼SW¼NE¼ sec.8, T.1 S., R.42 E., Rosebud County, Hydrologic Unit 10100003, on left bank 10 ft (3 m) downstream from bridge on FAS Route 315, 1.5 mi (2.4 km) downstream from Lee Coulee, and 8.4 mi (13.5 km) southeast of Colstrip.

DRAINAGE AREA.--799 mi^2 (2,069 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,000 ft (914 m), from topographic map.

REMARKS.--Water-discharge records fair except those for winter period and September, which are poor. No gage-height record June 14-19. Diversions for irrigation of about 800 acres (3.24 km^2) above station.

AVERAGE DISCHARGE.--6 years, 59.0 ft^3/s (1.671 m^3/s), 42,750 acre-ft/yr (52.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 605 ft^3/s (17.1 m^3/s) May 21, 1978, gage height, 9.03 ft (2.752 m); minimum daily, 2.0 ft^3/s (0.057 m^3/s) Sept. 14-27, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 137 ft^3/s (3.88 m^3/s) June 15, gage height, 3.49 ft (1.064 m), from floodmark, no peak above base of 150 ft^3/s (4.25 m^3/s); maximum gage height, 4.99 ft (1.521 m) Feb. 26 (backwater from ice); minimum daily discharge, 2.0 ft^3/s (0.057 m^3/s) Sept. 14-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	34	30	34	25	40	55	40	27	15	5.7	5.4
2	25	35	32	35	29	33	54	38	26	15	5.4	4.8
3	25	36	34	35	33	33	54	38	27	15	5.2	4.5
4	25	36	37	35	33	30	54	37	27	14	4.8	4.0
5	25	37	40	32	32	28	56	36	29	12	5.0	4.0
6	25	38	42	30	30	30	55	36	29	11	4.8	3.5
7	25	38	40	27	29	31	53	36	29	12	4.8	3.5
8	25	38	40	25	28	32	51	35	28	11	5.2	3.0
9	25	38	42	20	29	34	50	34	27	11	5.0	3.0
10	27	38	40	23	30	36	52	33	25	12	5.2	2.5
11	29	38	38	24	27	39	62	29	24	12	5.4	2.5
12	29	39	39	28	28	41	65	28	24	11	5.4	2.5
13	29	39	40	33	29	43	58	28	25	9.7	5.7	2.2
14	29	36	38	33	26	46	56	28	58	9.7	5.7	2.0
15	28	36	35	32	24	50	52	28	64	8.8	5.4	2.0
16	29	35	27	30	22	47	51	32	72	8.2	5.4	2.0
17	29	34	30	29	24	52	51	32	59	8.5	5.4	2.0
18	30	33	35	28	27	56	49	30	37	8.8	4.8	2.0
19	31	32	35	24	30	62	52	26	28	8.8	4.2	2.0
20	31	31	34	22	35	64	72	26	25	8.2	4.2	2.0
21	31	30	32	25	36	64	72	25	25	8.2	4.0	2.0
22	32	29	31	27	37	64	64	25	25	7.6	3.8	2.0
23	32	29	30	30	36	62	57	24	24	7.6	3.8	2.0
24	32	30	29	27	33	60	51	23	23	7.3	3.3	2.0
25	33	29	30	24	32	56	48	22	21	7.3	3.3	2.0
26	33	28	33	22	40	56	46	23	20	7.0	3.3	2.0
27	34	29	32	20	52	58	44	24	19	7.0	3.4	2.0
28	34	28	31	19	50	60	44	23	18	7.0	3.6	2.5
29	34	26	32	21	44	57	43	23	17	6.5	3.6	3.0
30	34	27	32	22	---	60	42	24	16	5.9	5.7	3.0
31	34	---	33	24	---	57	---	25	---	5.9	9.4	---
TOTAL	909	1006	1073	840	930	1481	1613	911	898	299.0	149.9	81.9
MEAN	29.3	33.5	34.6	27.1	32.1	47.8	53.8	29.4	29.9	9.65	4.84	2.73
MAX	34	39	42	35	52	64	72	40	72	15	9.4	5.4
MIN	25	26	27	19	22	28	42	22	16	5.9	3.3	2.0
AC-FT	1800	2000	2130	1670	1840	2940	3200	1810	1780	593	297	162

CAL YR 1979 TOTAL 23901.0 MEAN 65.5 MAX 254 MIN 23 AC-FT 47410
WTR YR 1980 TOTAL 10191.8 MEAN 27.8 MAX 72 MIN 2.0 AC-FT 20220

06295250 ROSEBUD CREEK NEAR COLSTRIP, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 18...	1330	29	1	1420	8.5	15.0	10.0	9.0	89	590	170	72
DEC 12...	1445	38	1	1400	8.4	5.0	.5	12.0	93	630	170	88
JAN 09...	1430	21	2	1600	8.0	-15.0	.5	10.2	80	650	240	96
FEB 21...	1700	36	1	1350	8.1	1.0	.0	12.0	92	640	190	91
MAR 20...	1230	64	1	1020	8.4	8.0	.0	12.4	94	460	130	67
APR 17...	1430	49	0	1280	8.5	27.0	12.0	10.5	107	550	170	77
MAY 22...	1430	25	0	1400	8.4	36.0	21.0	8.1	101	640	250	73
JUN 19...	1400	25	1	1240	8.3	24.0	20.0	7.7	93	550	160	65
AUG 13...	1400	5.9	53	1750	8.5	20.0	19.0	8.1	96	690	310	62

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 18...	100	81	1.4	12	420	370	6.4	.6	.1	.00	16	911
DEC 12...	100	77	1.3	9.6	460	360	6.1	.5	--	--	18	936
JAN 09...	100	84	1.4	11	410	390	7.0	.7	.1	.00	19	955
FEB 21...	100	76	1.3	10	450	350	5.8	.6	--	--	20	924
MAR 20...	71	55	1.1	10	330	270	5.3	.3	--	--	13	690
APR 17...	86	67	1.2	9.8	380	320	5.1	.6	.1	.00	12	806
MAY 22...	110	93	1.6	10	390	410	6.0	.6	.0	.00	12	949
JUN 19...	95	71	1.3	11	390	320	4.6	.2	--	--	13	814
AUG 13...	130	130	2.2	15	390	620	6.6	.7	.0	.01	--	--

06295250 ROSEBUD CREEK NEAR COLSTRIP, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED (MG/L AS C) (00689)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT											
18...	1.24	71.3	.00	.08	.54	.62	.02	13	.2	210	70
DEC											
12...	1.27	96.0	.15	.01	.51	.52	.04	--	--	170	10
JAN											
09...	1.30	54.1	.27	.09	.40	.49	.03	19	.2	190	10
FEB											
21...	1.26	89.8	.39	.13	.51	.64	.04	--	--	160	10
MAR											
20...	.94	119	.26	.25	.95	1.2	.11	--	--	130	20
APR											
17...	1.10	107	.00	.04	1.2	1.2	.09	11	.7	160	< 10
MAY											
22...	1.29	64.1	.01	.00	1.2	1.2	.74	8.5	2.7	210	< 10
JUN											
19...	1.11	54.9	.03	.03	.97	1.0	.14	--	--	180	< 10
AUG											
13...	--	--	1.2	.04	1.3	1.3	.05	35	--	320	< 10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)
MAY								
22...	1430	3	2	0	< 1	0	< 1	0
AUG								
13...	1400	3	2	0	< 1	1	< 1	10

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COPPER TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
MAY								
22...	0	8	1	2200	5	1	150	6
AUG								
13...	0	5	1	680	0	4	50	6

DATE	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
MAY								
22...	.0	.0	6	2	1	1	50	< 3
AUG								
13...	.0	.0	5	2	0	0	20	< 3

06295250 ROSEBUD CREEK NEAR COLSTRIP, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
18...	1330	10.0	29	17	1.3	--
DEC						
12...	1445	.5	38	47	4.8	--
JAN						
09...	1430	.5	21	62	3.5	--
FEB						
21...	1700	.0	36	105	10	--
MAR						
20...	1230	.0	64	105	18	94
APR						
17...	1430	12.0	49	111	15	95
MAY						
22...	1430	21.0	25	131	8.8	98
JUN						
19...	1400	20.0	25	215	15	99
AUG						
13...	1400	19.0	5.9	110	1.8	--

06295380 COW CREEK NEAR COLSTRIP, MT

LOCATION.--Lat 45°51'51", long 106°27'02", in NW¼SW¼SE¼ sec.1, T.1 N., R.42 E., Rosebud County, Hydrologic Unit 10100003, at private road ford, 0.2 mi (0.3 km) downstream from confluence of South Fork, 4.2 mi (6.8 km) upstream from mouth and 8.4 mi (13.5 km) southeast of Colstrip.

DRAINAGE AREA.--27.2 mi^2 (71.3 km^2).

PERIOD OF RECORD.--October 1979 to September 1980.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT 17...	1200	.11	1	8600	8.2	21.0	10.5	9.2	91	4300	3600	410
NOV 07...	1215	.17	1	6900	8.1	.5	2.0	11.0	88	3000	2400	250
FEB 21...	1100	E.01	3	5650	8.0	4.0	.0	8.9	68	2900	2300	230
MAR 20...	1630	.99	1	3690	8.0	10.0	.5	9.9	76	1700	1300	230
APR 17...	1100	.29	0	4900	8.1	24.0	12.0	10.3	104	2600	2100	350
MAY 22...	1100	E.06	0	5030	8.0	32.0	20.0	8.6	105	2500	2000	290
JUN 19...	1100	E.80	2	4500	7.9	21.0	18.5	4.5	53	2200	1600	280

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
OCT 17...	790	850	5.7	50	680	5300	59	.5	.6	.00	24	7900
NOV 07...	570	690	5.5	--	550	3600	28	.5	--	--	22	--
FEB 21...	560	580	4.7	33	600	3600	30	.5	--	--	27	5420
MAR 20...	280	320	3.4	14	380	2000	15	.3	--	--	19	3110
APR 17...	410	450	3.9	20	500	2900	20	.5	.1	.00	19	4470
MAY 22...	440	480	4.1	23	540	3000	24	.5	.2	.00	23	4610
JUN 19...	370	450	4.2	24	610	2400	14	.6	--	--	24	3930

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT 17...	10.7	2.35	.00	.11	1.6	1.7	.04	24	.2	3700	40
NOV 07...	--	--	.02	.05	1.3	1.3	.02	--	--	2100	40
FEB 21...	7.37	E.15	.06	.04	1.1	1.1	.04	--	--	1900	60
MAR 20...	4.23	8.31	.00	.15	1.2	1.3	.06	--	--	1100	60
APR 17...	6.08	3.50	.01	.00	.90	.90	.05	24	.3	1700	50
MAY 22...	6.27	E.75	.01	.04	.96	1.0	.07	19	.8	1900	40
JUN 19...	5.34	E8.49	.03	.03	1.5	1.5	.05	--	--	1900	90

06295380 COW CREEK NEAR COLSTRIP, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAY								
22...	1100	3	2	0	0	0	0	10

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAY								
22...	0	7	0	790	4	0	150	90

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY								
22...	.0	.0	6	0	0	0	30	10

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
NOV					
07...	1215	2.0	.17	186	.09
FEB					
21...	1100	.0	E.01	34	.00
MAR					
20...	1630	.5	.99	97	.26
APR					
17...	1100	12.0	.29	56	.04
MAY					
22...	1100	20.0	E.06	56	.01
JUN					
19...	1100	18.5	E.80	48	.10

06295420 SNIDER CREEK NEAR BRANDENBERG, MT

LOCATION.--Lat 45°55'39", long 106°23'02", in S½NE¼ sec.16, T.2 N., R.43 E., Rosebud County, Hydrologic Unit 10090102, at county road crossing, 0.3 mi (0.5 km) upstream from mouth, and 7.8 mi (12.6 km) northwest of Brandenberg.

DRAINAGE AREA.--12.67 mi^2 (32.82 km^2) revised.

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Flow not present during station visits.

06296003 ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT

LOCATION.--Lat 46°15'53", long 106°28'30", in SW¼NW¼NE¼ sec.21, T.6 N., R.42 E., Rosebud County, Hydrologic Unit 10100003, on left bank 0.4 mi (0.6 km) upstream from bridge on Interstate Highway 94, 0.8 mi (1.3 km) upstream from mouth, and 1.6 mi (2.6 km) southwest of Rosebud.

DRAINAGE AREA.--1,302 mi^2 (3,372 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,480 ft (756 m), from topographic map.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Diversions for irrigation of about 2,000 acres (8.09 km^2).

AVERAGE DISCHARGE.--6 years, 66.8 ft^3/s (1.892 m^3/s), 48,400 acre-ft/yr (59.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,620 ft^3/s (74.2 m^3/s) May 19, 1978, gage height, 6.78 ft (2.067 m), from rating curve extended above 1,500 ft^3/s (42.5 m^3/s); minimum discharge, 0.43 ft^3/s (0.012 m^3/s) all or part of each day Aug. 21-25, 1980, gage height, 0.46 ft (0.014 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 310 ft^3/s (8.78 m^3/s) June 14, gage height, 2.85 ft (0.869 m); no peak above base of 350 ft^3/s (9.91 m^3/s); maximum gage height, 3.46 ft (1.055 m) Mar. 6 (backwater from ice); minimum discharge, 0.43 ft^3/s (0.012 m^3/s) all or part of each day Aug. 21-25, gage height, 0.46 ft (0.014 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.6	25	25	27	21	32	51	30	22	8.8	1.2	4.8
2	11	25	26	29	22	31	44	29	13	9.2	.67	10
3	9.6	25	28	29	25	28	51	30	7.3	6.6	.73	12
4	12	27	30	28	29	27	56	25	5.4	8.8	.95	6.3
5	11	27	34	26	26	25	54	26	15	7.7	.95	2.7
6	12	28	33	23	24	26	53	23	16	6.3	.67	2.4
7	16	29	30	20	23	27	50	28	15	2.0	.67	2.7
8	17	30	28	19	23	30	50	31	20	3.7	.54	2.7
9	17	30	27	18	24	32	51	38	18	1.3	.48	1.0
10	18	30	27	18	23	35	49	27	17	.95	.60	1.0
11	18	30	28	19	22	35	47	29	15	.88	.67	1.0
12	18	30	31	23	22	38	47	34	15	1.0	.73	1.5
13	18	34	35	30	21	40	49	25	14	.80	.67	1.8
14	16	32	34	29	21	50	58	15	44	1.0	.67	2.0
15	20	34	32	27	19	48	56	17	74	1.8	.80	1.5
16	24	39	25	27	20	55	52	22	115	1.0	9.2	1.2
17	19	35	26	27	21	60	39	16	89	.88	12	1.2
18	20	31	29	24	23	65	25	20	39	.95	3.5	1.0
19	21	29	32	19	25	71	25	25	36	6.6	.80	1.0
20	22	29	29	20	27	72	24	26	33	5.1	.60	.95
21	22	29	28	23	26	70	26	16	40	4.8	.43	.95
22	22	27	28	23	27	70	33	16	51	5.1	.43	.88
23	23	25	27	26	29	68	39	20	31	4.5	.43	.88
24	24	23	27	22	28	64	29	20	26	5.1	.43	.88
25	24	25	27	21	28	59	29	20	22	3.7	.43	.80
26	24	28	28	19	30	60	17	18	22	3.2	.48	.80
27	25	27	28	19	50	54	16	8.4	22	2.7	.80	.80
28	25	27	28	19	40	51	30	6.6	21	2.7	1.3	.80
29	25	26	28	20	35	45	25	6.3	15	1.8	18	.80
30	25	24	27	21	---	53	31	3.7	15	3.5	22	.67
31	25	---	26	21	---	55	---	6.0	---	2.7	10	---
TOTAL	593.2	860	891	716	754	1476	1206	657.0	887.7	115.16	91.83	67.01
MEAN	19.1	28.7	28.7	23.1	26.0	47.6	40.2	21.2	29.6	3.71	2.96	2.23
MAX	25	39	35	30	50	72	58	38	115	9.2	22	12
MIN	9.6	23	25	18	19	25	16	3.7	5.4	.80	.43	.67
AC-FT	1180	1710	1770	1420	1500	2930	2390	1300	1760	228	182	133

CAL YR 1979	TOTAL	27672.20	MEAN	75.8	MAX 670	MIN	5.8	AC-FT	54890
WTR YR 1980	TOTAL	8314.90	MEAN	22.7	MAX 115	MIN	.43	AC-FT	16490

06296003 ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1978 to current year.

REMARKS.--Once-daily water temperatures are available in the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,450 micromhos Aug. 28, 1980; minimum daily, 332 micromhos Mar. 9, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,450 micromhos Aug. 28; minimum daily, 710 micromhos Aug. 30.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT 16...	1600	21	1	1600	8.6	17.0	13.5	9.2	95	640	290	74
DEC 13...	1230	35	0	1540	8.4	4.0	.0	12.8	95	720	240	91
JAN 08...	1600	19	3	1830	8.1	-7.0	.0	12.2	90	810	190	110
FEB 19...	1200	25	1	1510	7.9	6.5	.0	10.0	75	740	250	99
MAR 19...	1615	71	1	972	8.4	6.0	.0	12.3	92	420	130	61
APR 16...	1030	52	0	1460	8.5	18.0	10.0	10.1	96	610	220	79
MAY 21...	1715	24	1	1760	8.5	35.0	23.0	9.0	114	680	280	75
JUN 17...	1600	84	90	770	7.5	22.5	18.0	7.1	81	270	150	46
AUG 13...	1100	.58	1	2520	8.4	26.0	20.0	7.3	86	630	100	71

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
OCT 16...	110	130	2.2	14	350	540	8.6	.6	.1	.00	14	1100
DEC 13...	120	110	1.8	11	480	470	7.0	.6	--	--	19	1120
JAN 08...	130	130	2.0	11	620	510	8.1	.8	.1	.00	18	1290
FEB 19...	120	120	1.9	12	490	460	9.6	.6	--	--	19	1140
MAR 19...	65	55	1.2	9.1	290	270	5.2	.3	--	--	12	652
APR 16...	100	100	1.8	10	390	420	6.3	.6	.1	.00	9.4	960
MAY 21...	120	170	2.8	12	400	610	6.3	.6	.1	.00	11	1250
JUN 17...	38	57	1.5	11	120	250	5.4	.3	--	--	6.8	487
AUG 13...	110	370	6.4	14	530	870	18	1.0	.0	.01	5.1	1780

06296003 ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 16...	1.50	62.4	.00	.04	.74	.78	.02	10	.1	260	30
DEC 13...	1.52	106	.05	.01	.55	.56	.03	--	--	200	< 10
JAN 08...	1.75	66.2	.09	.02	.71	.73	.03	20	.5	230	20
FEB 19...	1.55	76.9	.36	.03	.55	.58	.03	--	--	200	30
MAR 19...	.89	125	.23	.13	1.6	1.7	.24	--	--	130	20
APR 16...	1.31	135	.02	.00	.88	.88	.08	15	.7	200	< 10
MAY 21...	1.70	81.0	.01	.03	2.2	2.2	.50	13	1.7	260	< 10
JUN 17...	.66	110	.48	.50	8.2	8.7	.96	--	--	250	70
AUG 13...	2.37	2.79	1.2	.07	1.4	1.5	.07	30	.8	500	30

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAY 21...	1715	3	2	0	< 1	0	< 1	0
AUG 13...	1100	3	2	10	0	1	0	10

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAY 21...	0	7	2	1000	4	0	150	10
AUG 13...	0	6	1	1000	2	4	140	50

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY 21...	.0	.0	8	0	1	1	30	< 3
AUG 13...	.1	.0	8	3	1	1	40	10

06296003 ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1630	1490	1590	1590	1650	1060	1100	1380	1820	1700	2250	920
2	1640	1500	1630	1600	1590	977	1140	1420	1800	1720	2260	895
3	1650	1480	1630	1590	1690	839	1180	1460	1800	1770	2240	811
4	1650	1460	1610	1630	1650	851	1360	1480	1870	1830	2320	2200
5	1650	1460	1580	1640	1660	850	1280	1500	1820	1830	2330	2230
6	1650	1450	1570	1670	1670	846	1340	1500	1800	1900	2300	2200
7	1660	1460	1600	1700	1680	860	1360	1510	1790	1900	2240	2190
8	1650	1460	1590	1720	1650	916	1380	1480	1760	1940	2250	2170
9	1650	1430	1570	1760	1610	939	1410	1530	1690	1990	2250	2090
10	1660	1410	1560	1750	1600	860	1430	1550	1680	2000	2300	2090
11	1650	1400	1540	1760	1600	808	1420	1590	1700	2040	2350	1920
12	1660	1380	1550	1760	1590	792	1410	1560	1680	2050	2350	1890
13	1670	1400	1550	1760	1600	810	1400	1580	1670	2090	2350	1790
14	1670	1420	1540	1730	1580	849	1400	1600	1570	2140	2350	2020
15	1680	1410	1550	1680	1570	890	1410	1700	1290	2200	2140	2080
16	1670	1400	1600	1700	1570	910	1370	1630	1120	2140	2400	2100
17	1660	1390	1540	1720	1560	962	1390	1640	990	2080	2350	2130
18	1640	1390	1550	1710	1550	1010	1390	1660	1320	2100	2080	2150
19	1620	1390	1580	1710	1540	975	1380	1650	1420	2310	2320	2150
20	1630	1390	1580	1700	1490	1000	1400	1670	1400	2140	2360	2160
21	1630	1460	1590	1680	1420	1020	1430	1690	1490	2120	2350	2150
22	1620	1490	1600	1650	1380	1050	1440	1730	1730	2150	2340	2150
23	1600	1500	1650	1620	1360	1000	1420	1730	1480	2180	2300	2150
24	1580	1500	1660	1600	1400	996	1400	1730	1460	2110	2250	2150
25	1550	1490	1680	1600	1430	1000	1370	1700	1600	2200	2250	2180
26	1550	1480	1630	1620	1410	1020	1360	1690	1650	2150	2250	2160
27	1550	1520	1620	1650	1340	1060	1400	1740	1650	2200	2320	2170
28	1550	1540	1650	1720	1340	1080	1350	1760	1670	2210	2450	2170
29	1550	1560	1650	1700	1500	1100	1400	1800	1690	2200	1750	2170
30	1540	1580	1680	1680	---	1090	1440	1750	1720	2230	710	2180
31	1530	---	1670	1680	---	1100	---	1820	---	2250	780	---
MEAN	1620	1460	1600	1680	1540	952	1370	1620	1600	2060	2180	1990

WTR YR 1980 MEAN 1640 MAX 2450 MIN 710

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
16...	1600	13.5	21	137	7.8	--
DEC						
13...	1230	.0	35	110	10	--
JAN						
08...	1600	.0	19	117	6.0	--
FEB						
19...	1200	.0	25	46	3.1	--
MAR						
19...	1615	.0	71	348	67	97
APR						
16...	1030	10.0	52	158	22	97
MAY						
21...	1715	23.0	24	117	7.6	98
JUN						
17...	1600	18.0	84	2140	485	100
AUG						
13...	1100	20.0	.58	172	.27	--

06296120 YELLOWSTONE RIVER NEAR MILES CITY, MT

LOCATION.--Lat 46°23'51", long 105°53'36", in SE¼SW¼ sec.31, T.8 N., R.47 E., Custer County, Hydrologic Unit 10100001 at Keogh Bridge, 1.6 mi (2.6 km) upstream from Tongue River, 2.0 mi (3.2 km) west of Miles City, and at mile 183.1 (294.6 km).

DRAINAGE AREA.--42,847 mi^2 (110,974 km^2).

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.

REMARKS.--Water discharge computed by subtracting the discharge of Tongue River at Miles City (station 06308500) from that of Yellowstone River at Miles City (station 06309000). Flow affected by reservoirs and diversion for irrigation upstream from station. Once-daily water temperatures are available in the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,110 micromhos Apr. 1, 1979; minimum daily, 225 micromhos May 31, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,080 micromhos Jan. 15; minimum daily, 241 micromhos May 26.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)
OCT										
17...	1730	6000	2	710	8.8	15.5	14.0	9.9	104	< 1
NOV										
29...	1030	5900	0	791	8.6	-10.0	.0	13.6	99	--
JAN										
03...	1500	7000	3	870	8.5	5.0	1.5	13.1	102	--
23...	1400	6700	3	760	8.3	8.0	.5	12.0	90	--
FEB										
27...	1200	10500	1	800	8.4	22.0	1.0	11.0	85	--
MAR										
27...	1500	7400	0	880	8.5	12.0	6.0	11.0	96	--
APR										
22...	0930	11000	2	780	7.6	15.5	14.0	8.4	88	--
MAY										
20...	0915	12600	13	430	8.4	25.0	17.5	8.6	97	--
JUL										
01...	1300	20900	3	417	8.3	28.0	19.0	7.9	92	--
29...	0830	9550	1	635	8.6	32.0	23.5	7.4	95	--
AUG										
27...	0930	6400	0	675	8.5	16.0	16.0	8.9	98	--
SEP										
30...	0800	10500	3	610	8.4	10.0	14.5	8.8	94	--

06296120 YELLOWSTONE RIVER NEAR MILES CITY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)
OCT									
17...	K5	--	270	110	64	26	69	1.8	4.4
NOV									
29...	K3	23	300	120	74	28	73	1.8	4.3
JAN									
03...	K1	K11	290	130	70	27	75	1.9	3.8
23...	K6	K9	280	120	68	26	71	1.9	4.1
FEB									
27...	28	850	250	96	59	24	65	1.8	4.4
MAR									
27...	< 1	K10	300	130	73	29	81	2.0	4.3
APR									
22...	43	K19	260	100	65	24	63	1.7	4.0
MAY									
20...	88	120	150	48	36	14	33	1.2	2.5
JUL									
01...	54	40	140	55	35	12	32	1.2	2.1
29...	K1	K6	200	61	49	19	56	1.7	4.0
AUG									
27...	K30	K28	220	76	52	21	60	1.8	4.0
SEP									
30...	K50	23	200	71	51	18	52	1.6	3.6

DATE	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT									
17...	160	220	10	.5	7.7	498	.68	8070	.14
NOV									
29...	180	260	13	.5	11	572	.78	9110	.37
JAN									
03...	160	270	12	.5	9.7	564	.77	10700	.54
23...	160	240	10	.4	12	528	.72	9550	.55
FEB									
27...	150	230	13	.4	11	497	.68	14100	.48
MAR									
27...	170	280	11	.5	8.9	590	.80	11800	.28
APR									
22...	160	220	11	.5	63	548	.75	16300	.37
MAY									
20...	100	100	6.0	.3	11	263	.36	8950	.09
JUL									
01...	82	98	5.0	.3	10	244	.33	13800	.12
29...	140	170	8.7	.7	8.2	400	.54	10300	.07
AUG									
27...	160	190	12	.5	7.7	432	.59	7470	.01
SEP									
30...	140	170	8.4	.5	10	392	.53	11100	.00

06296120 YELLOWSTONE RIVER NEAR MILES CITY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED (MG/L AS C) (00689)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT 17...	.00	.52	.52	.05	--	3.5	.4	180	< 10
NOV 29...	.05	.31	.36	.01	10	--	--	190	< 10
JAN 03...	.01	4.7	4.7	.03	4.7	--	--	160	< 10
23...	.05	.50	.55	.04	--	4.7	.2	180	< 10
FEB 27...	.13	..42	.55	.05	12	--	--	170	20
MAR 27...	.07	.49	.56	.06	16	--	--	180	10
APR 22...	.12	1.1	1.2	.17	--	10	--	150	< 10
MAY 20...	.04	.56	.60	.11	5.3	--	--	90	20
JUL 01...	.01	.98	.99	.06	6.4	--	--	150	10
29...	.00	.82	.82	.06	--	11	--	160	< 10
AUG 27...	.00	1.1	1.1	.04	4.0	--	--	130	100
SEP 30...	.00	1.0	1.0	.05	4.7	--	--	50	10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)
OCT 17...	1730	7	7	0	< 1	0	< 1	10
JAN 23...	1400	7	6	0	< 1	0	< 1	40
APR 22...	0930	7	5	--	< 1	--	< 1	--
JUL 29...	0830	8	9	10	< 1	0	< 1	10

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)
OCT 17...	0	3	2	360	1	2	30	2
JAN 23...	0	12	0	710	6	0	30	3
APR 22...	0	--	5	--	--	3	--	2
JUL 29...	10	24	3	920	15	1	50	4

DATE	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 17...	.2	.0	1	0	2	1	0	< 3
JAN 23...	.0	.0	18	6	2	2	10	< 3
APR 22...	--	.0	--	0	--	2	--	720
JUL 29...	.1	.0	4	0	1	1	140	6

06296120 YELLOWSTONE RIVER NEAR MILES CITY, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980 ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	730	685	840	851	890	788	903	499	394	440	600	670
2	749	698	849	871	972	787	915	500	391	458	660	688
3	750	693	852	872	970	749	882	486	397	466	671	679
4	741	691	831	864	972	726	885	436	399	456	678	670
5	750	695	799	830	951	749	920	436	401	441	681	655
6	752	700	801	865	909	849	921	430	400	446	690	661
7	753	701	781	891	851	849	940	431	441	448	693	651
8	752	703	787	921	819	881	948	411	442	440	700	655
9	751	689	792	950	811	898	911	411	442	481	700	660
10	755	682	815	955	815	857	914	358	453	508	730	665
11	760	676	811	961	822	857	881	354	456	512	740	670
12	758	676	821	982	830	792	885	351	439	540	---	668
13	755	771	822	1000	833	792	890	380	351	538	---	664
14	752	780	811	1040	830	822	881	422	355	539	---	669
15	750	775	902	1080	824	828	881	405	352	560	---	610
16	749	769	890	1030	852	845	870	423	346	577	---	611
17	751	774	899	1000	861	819	815	456	347	596	---	537
18	753	781	912	916	910	801	819	476	352	625	749	532
19	755	---	915	848	920	819	811	462	349	629	742	535
20	747	744	921	821	930	843	750	430	311	650	750	542
21	760	---	839	810	920	870	760	428	316	652	728	549
22	761	790	837	811	873	873	760	407	289	630	730	539
23	762	780	802	840	819	870	709	369	289	620	700	537
24	750	788	803	841	792	879	700	310	280	649	691	572
25	741	810	800	840	820	879	604	245	281	649	690	576
26	749	808	796	842	779	873	601	241	294	660	690	580
27	752	799	791	845	769	880	550	301	341	641	682	584
28	751	821	799	871	760	881	550	321	348	647	699	590
29	709	832	808	872	763	900	497	329	385	641	700	589
30	710	841	814	910	---	902	500	351	387	660	708	597
31	680	---	818	940	---	908	---	351	---	665	702	---
MEAN	746	748	831	902	857	841	795	394	368	563	700	614
WTR YR 1980		MEAN	696	MAX	1080	MIN	241					

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
17...	1730	14.0	6000	32	518	95
NOV						
29...	1030	.0	5900	13	207	--
JAN						
03...	1500	1.5	7000	70	1320	63
23...	1400	.5	6700	58	1050	49
FEB						
27...	1200	1.0	10500	63	1790	76
MAR						
27...	1500	6.0	7400	60	1200	84
APR						
22...	0930	14.0	11000	224	6650	80
MAY						
20...	0915	17.5	12600	126	4290	73
JUL						
01...	1300	19.0	20900	125	7050	70
29...	0830	23.5	9550	64	1650	73
AUG						
27...	0930	16.0	6400	45	778	90
SEP						
30...	0800	14.5	10500	61	1730	82

06306100 SQUIRREL CREEK NEAR DECKER, MT

LOCATION.--Lat 45°03'05", long 106°55'36", in NW¼NW¼ sec.14, T.9 S., R.39 E., Bighorn County, Hydrologic Unit 10090101, on left bank 0.4 mi (0.6 km) upstream from Powers Cormack ditch, 0.5 mi (0.8 km) northwest of C X Ranch, 4 mi (6 km) northwest of Decker, and 7 mi (11 km) upstream from mouth.

DRAINAGE AREA.--33.6 mi^2 (87.0 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,680 ft (1,222 m), from topographic map.

REMARKS.--Water-discharge records fair except those for Aug. 17 to Sept. 30, which are poor. Two small diversions above station.

AVERAGE DISCHARGE.--5 years, 4.88 ft^3/s (0.138 m^3/s), 3,540 acre-ft/yr (4.36 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 584 ft^3/s (16.5 m^3/s) May 18, 1978, gage height, 7.27 ft (2.216 m); no flow Jan. 8, 1977, and on many days September 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 36 ft^3/s (1.02 m^3/s) Apr. 16, gage height, 2.88 ft (0.878 m); maximum gage height, 4.33 ft (1.320 m) Feb. 28 (backwater from ice); no flow Sept. 1-15, 18-20, 23-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.51	1.6	1.0	.74	.51	4.5	6.3	4.8	3.6	.25	.06	.00
2	.60	1.5	1.1	.74	.60	4.8	4.5	3.6	3.6	.20	.06	.00
3	.64	1.5	1.3	.80	.60	4.7	3.4	2.7	4.7	.20	.06	.00
4	.74	1.6	1.8	.92	.69	2.6	2.7	3.4	2.4	.18	.06	.00
5	.74	1.9	2.2	.92	.86	2.2	3.0	4.0	1.9	.14	.06	.00
6	.80	2.2	2.4	.86	1.0	2.4	8.3	2.6	4.0	.14	.06	.00
7	.80	1.8	2.3	.64	1.6	2.4	14	2.1	4.4	.12	.06	.00
8	.74	1.5	1.5	.51	1.3	2.3	7.9	1.7	3.6	.09	.06	.00
9	.80	1.7	2.1	.45	1.3	2.4	7.0	1.7	2.6	.09	.06	.00
10	.92	1.7	2.1	.40	1.2	3.8	6.3	5.8	2.1	.08	.06	.00
11	.92	1.9	1.0	.43	1.1	5.0	7.5	9.4	1.6	.08	.07	.00
12	.92	2.1	1.3	.47	1.1	5.3	6.4	5.4	1.3	.08	.07	.00
13	.98	1.6	1.3	.51	1.2	3.8	5.9	3.8	1.2	.08	.07	.00
14	1.0	1.7	1.3	.74	1.1	3.4	7.7	3.1	.98	.08	.07	.00
15	1.0	1.8	1.3	.80	1.0	3.4	18	2.7	1.2	.08	.07	.00
16	1.2	1.8	.98	.92	1.0	3.0	22	2.2	1.3	.08	.07	.01
17	1.2	1.9	.98	1.0	.98	2.7	14	1.9	2.2	.08	.05	.01
18	1.3	1.9	1.0	1.1	.98	2.7	11	1.7	1.5	.07	.05	.00
19	1.0	1.9	1.2	1.2	1.0	3.4	9.5	1.6	1.0	.07	.05	.00
20	1.0	1.8	1.3	1.1	3.0	3.4	8.0	1.5	.92	.07	.05	.00
21	1.1	1.0	1.4	1.1	7.2	3.6	7.0	1.4	.92	.07	.04	.02
22	1.3	1.0	1.3	1.0	7.4	3.6	6.5	1.2	.80	.07	.04	.01
23	1.3	1.3	1.3	1.1	5.0	4.0	5.8	1.0	.64	.07	.04	.00
24	1.3	1.7	1.2	1.6	2.4	4.4	5.4	1.0	.64	.07	.04	.00
25	1.3	1.8	1.3	1.6	1.8	3.8	5.1	3.4	.40	.07	.03	.00
26	1.2	1.3	1.3	1.6	2.6	2.9	4.8	4.5	.47	.07	.03	.00
27	1.1	1.1	1.1	1.3	8.0	2.6	4.2	2.4	.40	.07	.03	.00
28	1.3	.90	1.0	.92	17	2.3	3.6	1.8	.33	.07	.02	.00
29	2.6	.95	.92	.69	20	2.7	3.4	2.3	.30	.07	.02	.00
30	2.3	1.0	.86	.60	---	4.7	3.0	6.1	.25	.07	.02	.00
31	1.8	---	.80	.51	---	6.3	---	4.8	---	.06	.02	---
TOTAL	34.41	47.45	41.94	27.27	93.52	109.1	222.2	95.6	51.25	3.02	1.55	.05
MEAN	1.11	1.58	1.35	.88	3.22	3.52	7.41	3.08	1.71	.097	.050	.002
MAX	2.6	2.2	2.4	1.6	20	6.3	22	9.4	4.7	.25	.07	.02
MIN	.51	.90	.80	.40	.51	2.2	2.7	1.0	.25	.06	.02	.00
AC-FT	68	94	83	54	185	216	441	190	102	6.0	3.1	.10

CAL YR 1979 TOTAL 2175.13 MEAN 5.96 MAX 58 MIN .47 AC-FT 4310
WTR YR 1980 TOTAL 727.36 MEAN 1.99 MAX 22 MIN .00 AC-FT 1440

06306100 SQUIRREL CREEK NEAR DECKER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 22...	1215	1.2	0	1550	8.2	7.0	6.0	9.6	88	810	300	110
DEC 17...	1255	1.0	0	1620	8.0	3.0	.0	10.2	80	810	280	110
FEB 21...	0900	6.3	40	847	8.2	-2.0	.0	11.2	88	440	180	67
MAR 28...	0850	2.4	1	1220	8.3	4.5	.5	10.2	80	580	230	84
APR 25...	0915	5.4	0	1100	8.3	12.5	8.0	8.4	80	560	210	91
JUN 03...	1330	4.2	0	1090	8.4	22.0	23.5	7.0	94	600	190	84
25...	1400	.53	0	1300	8.4	27.0	23.0	7.4	98	650	230	79
JUL 15...	1120	.07	1	1550	7.5	17.5	10.5	4.4	45	780	280	97

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 22...	130	67	1.0	12	510	450	6.1	.5	.1	.00	16	1100
DEC 17...	130	67	1.0	8.6	530	470	4.5	.5	.1	.00	14	1120
FEB 21...	66	27	.6	12	260	200	4.4	.3	--	--	13	546
MAR 28...	91	42	.8	6.4	350	320	3.0	.3	--	--	9.6	767
APR 25...	82	35	.6	6.1	350	310	2.7	.4	.1	.00	10	748
JUN 03...	94	41	.7	7.5	410	280	2.6	.5	--	--	11	767
25...	110	52	.9	7.9	420	350	3.7	.5	--	--	11	867
JUL 15...	130	75	1.2	11	500	390	3.4	.7	.2	.01	17	1030

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 22...	1.50	3.56	.07	.01	.80	.81	.06	11	.2	160	70
DEC 17...	1.52	3.02	.07	.03	.63	.66	.01	19	.5	120	40
FEB 21...	.74	9.29	.28	.12	1.6	1.7	.26	--	--	140	180
MAR 28...	1.04	4.97	.10	.15	.85	1.0	.06	--	--	80	40
APR 25...	1.02	10.9	.60	.04	1.4	1.4	.00	16	.1	80	40
JUN 03...	1.04	8.70	.07	.04	1.8	1.8	.08	--	--	110	20
25...	1.18	1.24	.20	.10	.82	.92	.06	--	--	160	30
JUL 15...	1.40	.19	.01	.04	.96	1.0	.58	24	.2	170	60

06306100 SQUIRREL CREEK NEAR DECKER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
APR 25...	0915	2	1	0	< 1	0	< 1	0

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
APR 25...	0	5	3	670	2	3	130	120

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
APR 25...	.0	.0	4	1	0	0	20	6

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT 22...	1215	6.0	1.2	55	.18
DEC 17...	1255	.0	1.0	54	.15
FEB 21...	0900	.0	6.3	60	1.0
MAR 28...	0850	.5	2.4	31	.20
APR 25...	0915	8.0	5.4	57	.83
JUN 03...	1330	23.5	4.2	74	.84
25...	1400	23.0	.53	21	.03
JUL 15...	1120	10.5	.07	32	.01

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT

LOCATION (REVISED).--Lat 45°00'32", long 106°50'08", in NW¼NW¼NE¼ sec.33, T.9 S., R.40 E., Big Horn County, Hydrologic Unit 10090101, on left bank 1 mi (2 km) north of Wyoming-Montana State line, 1.4 mi (2.3 km) southeast of Decker, 1.6 mi (2.6 km) upstream from Badger Creek, and at mile 200.9 (323.2 km).

DRAINAGE AREA.--1,477 mi^3 (3,825 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1960 to current year. Records published as "near Decker" May 1928 to September 1938, not equivalent owing to intervening drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,429.14 ft (1,045.202 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Water-discharge records good except those for winter period and June 24 to Sept. 9, which are poor. Flow regulated by many small reservoirs in Wyoming, combined capacity, about 15,000 acre-ft (18.5 hm^3). Diversions for irrigation of about 64,300 acres (260 km^2) above station.

AVERAGE DISCHARGE.--20 years, 508 ft^3/s (14.39 m^3/s), 368,000 acre-ft/yr (454 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft^3/s (496 m^3/s) May 19, 1978, gage height, 14.25 ft (4.343 m); minimum, 3.0 ft^3/s (0.11 m^3/s) Aug. 23, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,290 ft^3/s (64.9 m^3/s) May 25, gage height, 6.18 ft (1.884 m), only peak above base of 2,000 ft^3/s (56.6 m^3/s); maximum gage height, 6.96 ft (2.121 m) Feb. 29 (ice jam); minimum daily discharge, 51 ft^3/s (1.44 m^3/s) July 30, Aug. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	168	243	150	125	130	280	283	552	1060	404	53	104
2	168	253	170	125	135	170	276	632	1010	442	51	113
3	163	231	190	125	140	250	266	597	971	429	56	115
4	173	231	210	120	140	240	259	538	939	388	61	109
5	178	253	200	125	135	220	250	542	1050	372	69	115
6	173	256	180	115	135	240	250	533	1280	333	71	109
7	176	243	160	95	125	280	263	523	1590	293	66	109
8	178	237	140	95	130	270	263	542	1260	259	64	104
9	181	237	130	95	130	260	237	547	1100	240	66	106
10	204	237	140	90	130	300	256	643	1110	234	66	113
11	218	234	120	85	125	390	276	920	1230	207	66	115
12	213	237	125	100	125	500	266	718	1330	176	67	106
13	198	222	130	110	120	400	240	607	1310	160	72	122
14	189	225	125	120	115	450	231	542	1180	150	64	128
15	189	228	115	115	105	450	219	523	1100	152	81	131
16	213	225	100	115	140	350	263	477	1340	145	92	138
17	266	231	80	110	200	360	263	514	1070	135	128	170
18	263	228	110	110	240	380	250	523	913	124	163	184
19	246	231	130	105	260	400	269	528	926	119	133	181
20	234	231	130	100	260	420	286	567	895	113	119	178
21	243	215	125	105	260	380	337	567	840	109	119	215
22	243	210	125	105	260	340	384	758	876	102	113	195
23	225	220	120	115	250	300	417	1130	810	85	109	204
24	225	270	120	130	230	280	438	1470	724	72	106	195
25	222	230	125	150	210	269	477	1730	653	67	100	201
26	218	210	120	110	260	253	500	1900	586	58	90	207
27	215	210	115	100	420	237	486	1250	482	54	94	201
28	213	180	120	90	540	231	473	1020	468	59	102	192
29	263	130	115	105	350	228	464	984	451	54	106	184
30	308	140	115	120	---	231	482	1130	429	51	104	184
31	259	---	120	130	---	247	---	1250	---	53	100	---
TOTAL	6625	6728	4155	3440	5800	9606	9624	24757	28983	5639	2751	4528
MEAN	214	224	134	111	200	310	321	799	966	182	88.7	151
MAX	308	270	210	150	540	500	500	1900	1590	442	163	215
MIN	163	130	80	85	105	170	219	477	429	51	51	104
AC-FT	13140	13340	8240	6820	11500	19050	19090	49110	57490	11180	5460	8980

CAL YR 1979 TOTAL 135083 MEAN 370 MAX 1900 MIN 80 AC-FT 267900
WTR YR 1980 TOTAL 112636 MEAN 308 MAX 1900 MIN 51 AC-FT 223400

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT 23...	1320	250	1	734	8.7	14.0	6.0	11.8	107	K18	340	110
NOV 14...	1210	246	0	801	8.7	5.0	1.0	13.6	107	K12	360	130
DEC 18...	1410	104	1	971	7.9	10.0	.0	10.8	83	24	430	200
JAN 30...	1250	126	0	1040	7.9	-16.0	.0	10.0	77	K350	430	130
FEB 21...	1220	262	40	776	8.1	-5.0	.0	9.4	74	--	340	120
MAR 26...	1300	266	1	988	8.5	9.0	5.0	10.6	94	45	450	190
APR 23...	1330	409	3	622	8.3	14.0	5.0	8.3	73	K630	280	91
JUN 02...	1430	929	1	368	8.2	21.0	13.5	8.3	91	1900	170	47
24...	1305	726	0	379	8.6	25.0	19.5	8.0	98	1100	170	47
JUL 14...	1300	152	0	652	8.5	27.0	22.0	8.8	114	39	300	110
AUG 12...	1210	71	0	1090	8.4	19.5	20.5	7.8	97	90	490	210
SEP 09...	1210	105	0	941	8.5	16.0	15.0	9.8	108	35	450	190

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT 23...	71	40	32	.8	3.3	260	9	230	.9	190	5.2	.3
NOV 14...	73	43	35	.8	3.8	280	3	240	.9	200	3.5	.3
DEC 18...	91	49	49	1.0	4.4	280	0	230	5.6	270	4.1	.5
JAN 30...	91	49	46	1.0	4.5	370	0	300	7.5	230	6.2	.4
FEB 21...	67	43	35	.8	5.5	270	0	210	3.4	190	6.5	.4
MAR 26...	87	56	47	1.0	5.4	320	0	260	1.6	280	5.6	.5
APR 23...	55	34	26	.7	3.2	230	0	190	1.8	130	3.3	.3
JUN 02...	37	18	17	.6	3.1	150	0	120	1.5	82	.9	.3
24...	40	17	9.0	.3	2.1	150	0	120	.6	59	1.3	.4
JUL 14...	56	38	30	.8	3.2	230	0	190	1.2	160	4.0	.3
AUG 12...	88	66	67	1.3	5.3	340	0	270	2.2	330	4.5	.4
SEP 09...	100	48	42	.9	4.0	310	3	270	1.6	280	3.6	.3

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT												
23...	3.8	483	.66	326	.03	.00	.02	.96	.98	.05	--	--
NOV												
14...	3.3	510	.69	339	.01	.00	.06	.60	.66	.02	--	--
DEC												
18...	10	364	.50	102	.33	.23	.20	.48	.68	.19	--	--
JAN												
30...	11	622	.85	212	.46	.28	.45	1.4	1.8	.12	--	--
FEB												
21...	9.9	493	.67	349	.52	.62	.57	2.0	2.6	.24	--	--
MAR												
26...	7.1	649	.88	466	.28	.27	.27	.73	1.0	.16	--	--
APR												
23...	--	--	--	410	.03	.33	.04	1.1	1.1	.16	--	--
JUN												
02...	8.6	241	.33	605	.10	.11	.07	2.1	2.2	.09	8.7	20
24...	8.0	210	.29	412	.04	.02	.05	.61	.66	.05	--	--
JUL												
14...	2.8	400	.54	164	.01	.05	.04	1.8	1.8	.04	--	--
AUG												
12...	4.2	735	1.00	141	.01	.04	.07	.67	.74	.05	--	--
SEP												
09...	3.4	637	.87	181	.00	.00	.00	.32	.32	.00	4.6	20

DATE	TIME	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
JUN										
02...	1430	290	30	1	1	0	< 1	3	3	0
SEP										
09...	1210	150	20	2	4	0	< 1	1	3	10

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
JUN											
02...	0	7	1	1800	20	3	1	10	10	90	10
SEP											
09...	0	5	5	350	20	5	0	40	40	50	30

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUN											
02...	.1	.0	0	0	7	1	0	0	2.0	30	< 3
SEP											
09...	.0	.0	2	0	5	3	0	0	2.0	30	10

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
23...	1320	6.0	250	43	29	95
NOV						
14...	1210	1.0	246	25	17	91
DEC						
18...	1410	.0	104	30	8.4	53
JAN						
30...	1250	.0	126	36	12	83
FEB						
21...	1220	.0	262	42	30	92
MAR						
26...	1300	5.0	266	74	53	98
APR						
23...	1330	5.0	409	135	149	97
JUN						
02...	1430	13.5	929	127	319	91
24...	1305	19.5	726	57	112	95
JUL						
14...	1300	22.0	152	32	13	92
AUG						
12...	1210	20.5	71	56	11	85
SEP						
09...	1210	15.0	105	32	9.1	94

06306900 SPRING CREEK NEAR DECKER, MT

LOCATION.--Lat 45°05'09", long 106°50'12", in SW¼NW¼SE¼ sec.33, T.8 S., R.40 E., Bighorn County, Hydrologic Unit 10090101, on county road bridge, 0.2 mi (0.3 km) downstream from South Fork, 1.2 mi (1.9 km) upstream from Tongue River Reservoir, and 5.3 mi (8.5 km) northeast of Decker.

DRAINAGE AREA.--34.7 mi^2 (89.9 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
FEB												
20...	1000	8.6	2	361	7.9	3.0	.0	11.0	87	130	52	23

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
FEB											
20...	17	11	.4	19	75	83	6.8	.2	.1	.00	8.9

DATE	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
FEB											
20...	214	.29	4.97	.43	.17	2.7	2.9	.56	39	110	230

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
FEB					
20...	1000	.0	8.6	66	1.5

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT

LOCATION.--Lat 45°08'29", long 106°46'15", in SW¼SE¼SE¼ sec.12, T.8 S., R.40 E., Big Horn County, Hydrologic Unit 10090101, on left bank 0.5 mi (0.8 km) downstream from Tongue River Dam, 4 mi (6 km) upstream from Post Creek, 8 mi (13 km) northeast of Decker, 16 mi (26 km) southeast of Kirby, and at mile 188.4 (303.1 km), revised.

DRAINAGE AREA.--1,770 mi^2 (4,580 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1939 to current year.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,344.40 ft (1,019.373 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Water and Power Resources Service).

REMARKS.--Water-discharge records good except those for Oct. 1 to Jan. 5 and July 16 to Sept. 30, which are fair. Flow regulated by Tongue River Reservoir (station number 06307000) and many small reservoirs, combined capacity, about 15,000 acre-ft (18.5 hm^3). Diversions for irrigation of about 64,800 acres (262 hm^2) above station.

AVERAGE DISCHARGE.--41 years, 465 ft^3/s (13.17 m^3/s), 336,900 acre-ft/yr (415 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft^3/s (306 m^3/s) May 20, 1978, gage height, 10.00 ft (3.048 m), from floodmark in gage well; no flow part of each day Nov. 12, 13, 1969, when gates at dam were closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,140 ft^3/s (32.3 m^3/s) June 15, gage height, 3.11 ft (0.948 m); minimum daily, 33 ft^3/s (0.93 m^3/s) Jan. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	179	164	338	155	171	152	335	389	888	520	374	301
2	152	169	338	137	171	152	213	389	947	520	374	356
3	132	169	162	33	171	150	248	393	941	520	371	353
4	132	171	38	114	171	148	248	393	935	516	374	349
5	130	162	171	112	171	148	248	393	935	511	380	345
6	130	167	66	176	159	146	248	393	935	503	380	345
7	128	157	63	176	143	146	245	393	1020	498	384	338
8	126	248	62	176	143	146	224	393	1000	490	380	335
9	124	245	114	176	143	143	213	393	1060	486	380	331
10	118	275	128	174	143	143	194	397	1070	486	384	328
11	137	275	187	174	143	143	233	397	1070	477	380	288
12	117	159	208	174	143	146	224	397	1070	477	380	254
13	158	137	213	174	146	146	251	397	1070	477	369	263
14	236	134	197	174	146	146	251	401	984	477	371	272
15	233	184	236	174	143	146	251	401	1110	477	374	269
16	230	189	236	174	143	146	251	401	1130	473	374	269
17	227	331	189	174	143	146	116	360	1120	469	374	269
18	227	260	189	174	143	148	227	318	1120	469	374	266
19	224	152	236	174	143	148	275	324	1070	469	374	266
20	224	213	128	174	143	150	275	328	917	469	378	263
21	222	291	171	174	143	150	213	335	882	469	378	260
22	219	318	239	174	143	179	148	342	842	465	378	260
23	221	318	224	174	146	210	291	349	820	469	378	257
24	219	318	210	174	146	210	308	356	825	469	374	257
25	219	321	210	173	146	216	208	448	781	469	374	257
26	216	318	210	173	148	239	311	490	579	469	371	251
27	216	248	210	173	148	230	389	641	579	473	371	251
28	213	224	208	173	150	314	389	691	529	469	367	251
29	213	338	208	173	152	294	389	598	507	414	367	248
30	213	321	181	173	---	335	389	661	516	374	363	248
31	213	---	155	172	---	335	---	814	---	378	360	---
TOTAL	5748	6976	5725	5075	4344	5651	7805	13375	27252	14702	11610	8600
MEAN	185	233	185	164	150	182	260	431	908	474	375	287
MAX	236	338	338	176	171	335	389	814	1130	520	384	356
MIN	117	134	38	33	143	143	116	318	507	374	360	248
AC-FT	11400	13840	11360	10070	8620	11210	15480	26530	54050	29160	23030	17060

CAL YR 1979 TOTAL 133839 MEAN 367 MAX 1600 MIN 38 AC-FT 265500
WTR YR 1980 TOTAL 116863 MEAN 319 MAX 1130 MIN 33 AC-FT 231800

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 23...	1000	220	2	819	8.5	8.0	12.0	9.6	100	350	140	63
DEC 18...	1020	148	0	884	8.2	.0	3.0	12.0	100	430	150	84
MAR 26...	0920	242	1	906	8.2	4.0	3.0	11.8	99	400	160	77
APR 23...	1000	117	0	812	8.0	16.0	5.0	10.7	94	350	160	65
JUN 04...	1230	919	1	415	8.4	23.5	15.5	8.5	96	190	65	38
25...	1050	846	0	403	8.4	27.0	19.5	8.0	97	170	60	35
JUL 16...	0945	474	0	419	8.0	22.0	21.0	7.0	88	170	40	35
AUG 13...	1210	371	2	511	8.2	16.0	20.0	8.0	98	220	66	42
SEP 10...	0940	331	1	685	8.4	19.0	17.5	7.6	89	270	110	48

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 23...	46	41	1.0	5.0	210	210	3.9	.3	.0	.00	6.0	502
DEC 18...	54	46	1.0	4.1	280	270	4.9	.3	.0	.00	5.6	637
MAR 26...	51	47	1.0	5.8	240	250	4.9	.2	--	--	10	590
APR 23...	45	45	1.1	6.9	190	240	5.9	.3	.0	.00	8.5	531
JUN 04...	22	20	.6	2.9	120	97	2.1	.2	.0	.00	6.9	261
25...	20	16	.5	2.2	110	100	1.7	.2	--	--	7.0	248
JUL 16...	20	16	.5	2.6	130	83	1.6	.3	.1	.00	6.5	243
AUG 13...	27	24	.7	3.1	150	130	2.7	.4	--	--	5.4	325
SEP 10...	37	38	1.0	4.6	180	190	3.8	.4	.0	.01	6.6	425

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 23...	.68	298	.00	.00	.66	.66	.02	6.1	.2	110	< 10
DEC 18...	.87	255	--	--	--	.73	.03	7.8	.5	110	20
MAR 26...	.80	386	.39	.50	.80	1.3	.12	--	--	110	40
APR 23...	.72	168	.25	.01	1.2	1.2	.07	11	.9	90	30
JUN 04...	.36	648	.09	.16	1.8	2.0	.07	5.7	.5	70	10
25...	.34	566	.08	.19	.69	.88	.06	--	--	110	30
JUL 16...	.33	311	.01	.25	.85	1.1	.07	3.2	.2	50	20
AUG 13...	.44	326	.00	.06	.65	.71	.05	--	--	80	< 10
SEP 10...	.58	380	.00	.07	.65	.72	.07	8.1	.3	80	< 10

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
OCT 23...	1000	--	--	--	--	--	--	--
MAR 26...	0920	--	--	--	--	--	--	--
APR 23...	1000	--	--	--	--	--	--	--
JUN 04...	1230	2	1	0	< 1	1	2	0
25...	1050	--	--	--	--	--	--	--
JUL 16...	0945	--	--	--	--	--	--	--
SEP 10...	0940	5	5	10	< 1	1	< 1	30

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
OCT 23...	--	--	--	--	--	--	--	--
MAR 26...	--	--	--	--	--	--	--	--
APR 23...	--	--	--	--	--	--	--	--
JUN 04...	0	13	6	500	7	3	60	40
25...	--	--	--	--	--	--	--	--
JUL 16...	--	--	--	--	--	--	--	--
SEP 10...	20	9	7	350	4	6	110	50

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT 23...	.1	--	--	--	--	--	--	--
MAR 26...	.1	--	--	--	--	--	--	--
APR 23...	.2	--	--	--	--	--	--	--
JUN 04...	.1	.0	6	1	0	0	20	< 3
25...	.1	--	--	--	--	--	--	--
JUL 16...	.0	--	--	--	--	--	--	--
SEP 10...	.1	.0	7	3	1	1	30	7

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
23...	1000	12.0	220	17	10	85
DEC						
18...	1020	3.0	148	35	14	70
MAR						
26...	0920	3.0	242	12	7.8	86
APR						
23...	1000	5.0	117	39	12	80
JUN						
04...	1230	15.5	919	28	69	90
25...	1050	19.5	846	26	59	63
JUL						
16...	0945	21.0	474	11	14	84
AUG						
13...	1210	20.0	371	17	17	86
SEP						
10...	0940	17.5	331	16	14	94

06307525 PRAIRIE DOG CREEK ABOVE JACK CREEK, NEAR BIRNEY, MT

LOCATION (REVISED).--Lat 45°20'08", long 106°46'26", SE¼NW¼NE¼ sec.12, T.6 S., R.40 E., Big Horn County, Hydrologic Unit 10090101, on left bank approximately 9.1 mi (14.6 km) upstream from mouth, and 13 mi (21 km) west of Birney.

DRAINAGE AREA.--6.57 mi^2 (17.02 km^2), revised.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,850 ft (1,173 m), from topographic map.

REMARKS.--Water-discharge records poor. Several stock ponds above station (combined capacity about 50 acre-ft or 61,600 m^3).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 6.81 ft^3/s (0.19 m^3/s) Apr. 19, 1979, gage height, 2.23 ft (0.707 m); minimum daily, 0.01 ft^3/s (0.0002 m^3/s) Jan. 6-10, Aug. 17, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined; maximum gage height, undetermined; minimum daily discharge, 0.01 ft^3/s (0.0002 m^3/s) Jan 6-10, Aug. 17.

REVISIONS.--In the following table are revised daily discharges, in cubic feet per second, for the months of August and September 1979. These figures supersede those figures published in the report for 1979.

Day	Aug	Sept	Day	Aug	Sept	Day	Aug	Sept	Day	Aug	Sept
1	0.58	0.13	9	0.18	0.09	17	0.13	0.09	25	0.13	0.10
2	.49	.09	10	.32	.10	18	.18	.07	26	.18	.09
3	.49	.07	11	.18	.10	19	.18	.09	27	.13	.10
4	.49	.07	12	.18	.13	20	.18	.09	28	.13	.10
5	.32	.07	13	.32	.13	21	.13	.09	29	.10	.10
6	.32	.09	14	.32	.10	22	.18	.09	30	.10	.18
7	.18	.09	15	.32	.10	23	.18	.09	31	.10	---
8	.32	.07	16	.13	.10	24	.13	.09			

	Aug	Sept
TOTAL........................	7.3	2.9
MEAN.........................	.24	.10
MAX..........................	.58	.18
MIN..........................	.10	.07
AC-FT........................	14	5.8

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	.13	.06	.02	.10	.10	.18	.07	.09	.06	.02	.07
2	.13	.13	.06	.02	.10	.10	.17	.07	.09	.06	.02	.07
3	.13	.13	.06	.02	.10	.08	.18	.07	.09	.07	.06	.07
4	.10	.13	.06	.02	.10	.06	.20	.07	.09	.07	.06	.07
5	.10	.13	.07	.02	.10	.04	.18	.09	.09	.06	.03	.03
6	.09	.18	.09	.01	.10	.06	.18	.09	.09	.06	.02	.03
7	.09	.18	.10	.01	.08	.06	.22	.09	.09	.06	.03	.03
8	.09	.18	.09	.01	.08	.06	.20	.07	.09	.07	.02	.07
9	.10	.18	.10	.01	.08	.07	.20	.09	.10	.07	.02	.09
10	.09	.18	.09	.01	.08	.07	.20	.10	.10	.06	.02	.07
11	.09	.18	.09	.02	.08	.07	.20	.20	.10	.06	.04	.09
12	.09	.13	.07	.06	.08	.07	.20	.18	.10	.07	.02	.10
13	.10	.13	.06	.06	.08	.06	.18	.18	.10	.06	.04	.09
14	.09	.13	.06	.06	.06	.06	.18	.18	.10	.09	.03	.09
15	.09	.13	.06	.06	.04	.07	.18	.13	.10	.07	.02	.13
16	.09	.13	.02	.05	.06	.06	.18	.18	.10	.07	.02	.18
17	.10	.13	.02	.04	.20	.04	.18	.18	.10	.07	.01	.10
18	.10	.13	.03	.04	1.0	.06	.32	.10	.10	.10	.02	.18
19	.10	.13	.04	.04	5.0	.09	.49	.13	.09	.07	.03	.10
20	.10	.13	.06	.04	4.5	.07	.32	.10	.06	.09	.04	.18
21	.13	.10	.06	.06	4.1	.06	.32	.10	.06	.10	.04	.13
22	.13	.10	.06	.12	3.5	.06	.32	.10	.06	.13	.04	.18
23	.10	.10	.06	.18	3.0	.13	.32	.09	.06	.07	.03	.18
24	.10	.10	.06	.18	3.0	.07	.13	.12	.07	.06	.03	.32
25	.10	.10	.06	.18	3.0	.07	.10	.14	.07	.06	.07	.18
26	.10	.10	.06	.18	1.5	.07	.13	.12	.07	.06	.07	.18
27	.10	.09	.04	.13	.80	.10	.10	.10	.09	.04	.09	.18
28	.10	.07	.03	.10	.60	.49	.09	.18	.07	.03	.07	.07
29	.10	.07	.03	.10	.50	.49	.09	.10	.07	.03	.06	.09
30	.13	.06	.02	.13	---	.32	.09	.10	.07	.02	.09	.09
31	.13	---	.02	.13	---	.25	---	.09	---	.02	.09	---
TOTAL	3.22	3.79	1.79	2.11	32.02	3.46	6.03	3.61	2.56	2.01	1.25	3.44
MEAN	.10	.13	.058	.068	1.10	.11	.20	.12	.085	.065	.040	.11
MAX	.13	.18	.10	.18	5.0	.49	.49	.20	.10	.13	.09	.32
MIN	.09	.06	.02	.01	.04	.04	.09	.07	.06	.02	.01	.03
AC-FT	6.4	7.5	3.6	4.2	64	6.9	12	7.2	5.1	4.0	2.5	6.8

WTR YR 1980 TOTAL 65.29 MEAN .18 MAX 5.0 MIN .01 AC-FT 130

06307525 PRAIRIE DOG CREEK ABOVE JACK CREEK, NEAR BIRNEY, MT--Continued

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
FEB 21...	1430	4.1	--	530	7.9	7.0	.5	11.7	93	210	74	33
MAY 15...	1130	.19	1	1850	8.0	19.0	11.0	8.9	93	990	530	100

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
FEB 21...	32	13	.4	10	140	110	3.0	.1	.1	.00	9.0	295
MAY 15...	180	100	1.4	7.5	460	680	7.2	.4	.0	.00	9.7	1360

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
FEB 21...	.40	3.27	.07	.19	2.2	2.4	.27	31	2.9	160	150
MAY 15...	1.85	.70	.18	.00	8.8	8.8	.01	13	.3	90	< 10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
MAY 15...	1130	1	2	0	< 1	0	< 1	0

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
MAY 15...	0	2	4	100	0	2	10	5

06307525 PRAIRIE DOG CREEK ABOVE JACK CREEK, NEAR BIRNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY								
15...	.0	.0	4	7	4	5	10	< 3

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
FEB					
21...	1430	.5	4.1	189	2.1
MAY					
15...	1130	11.0	.19	10	.01

06307528 PRAIRIE DOG CREEK NEAR BIRNEY, MT

LOCATION.--Lat 45°17'28", long 106°40'56", in SE¼NW¼NW¼ sec.26, T.6 S., R.41 E., Rosebud County, Hydrologic Unit 10090101, on right bank, about 3.3 mi (5.3 km) above confluence with Tongue River, and 8.6 mi (13.8 km) west of Birney.

DRAINAGE AREA.--19.6 mi^2 (50.8 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1978 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,390 ft (1,033 m), from topographic map.

REMARKS.--Water-discharge records excellent except those for periods of flow, which are poor. Several diversions for stock ponds above station (combined capacity about 105 acre-ft or 0.13 hm^3).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 240 ft^3/s (6.80 m^3/s) June 14, 1980, gage height, 5.22 ft (1.591 m), from rating curve extended above 3.0 ft^3/s (0.08 m^3/s) on basis of step-backwater and slope-area determination of peak flow; no flow on many days.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 240 ft^3/s (6.80 m^3/s) June 14, gage height, 5.22 ft (1.591 m), from rating curve extended above 3.0 ft^3/s (0.08 m^3/s) on basis of step-backwater and slope-area determination of peak flow; no flow on many days.

REVISION.--The maximum gage height for the water year 1979 has been revised to 3.06 ft (0.933 m), superseding figure published in the report for 1979.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.05	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.06	.00	.00	.00	.03	.00	.00	.75	.00	.00	.00
7	.00	.07	.00	.00	.00	.20	.00	.00	.07	.00	.00	.00
8	.00	.07	.00	.00	.00	1.0	.00	.00	.00	.00	.00	.00
9	.00	.07	.00	.00	.00	.15	.00	.00	.00	.00	.00	.00
10	.00	.11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.20	.00	.00	.00	.01	.00	.00	13	.00	.01	.00
15	.01	.60	.00	.00	.00	.00	.00	.00	1.2	.00	.01	.00
16	.03	.10	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00
17	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.08	.00	.00	.00	.60	.00	.00	.00	.00	.00	.00	.00
21	.11	.00	.00	.00	2.0	.00	.00	.00	.00	.00	.00	.00
22	.03	.00	.00	.00	.80	.00	.00	.00	.00	.00	.00	.00
23	.16	.00	.00	.00	1.0	.00	.00	.00	.00	.00	.00	.00
24	.07	.00	.00	.02	.80	.00	.00	.00	.00	.00	.00	.00
25	.11	.00	.00	.00	.60	.00	.00	.00	.00	.00	.00	.00
26	.04	.00	.00	.00	.80	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	1.6	.00	.00	.00	.00	.00	.00	.00
28	.03	.00	.00	.00	1.1	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.60	.00	.00	.00	.00	.00	.00	.00
30	.01	.00	.00	.00	---	.00	.00	.02	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	1.17	1.48	.09	.02	9.90	1.39	.00	.02	15.02	.00	.03	.00
MEAN	.038	.049	.003	.001	.34	.045	.000	.001	.50	.000	.001	.000
MAX	.27	.60	.05	.02	2.0	1.0	.00	.02	13	.00	.01	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	2.3	2.9	.2	.04	20	2.8	.00	.04	30	.00	.06	.00

CAL YR 1979 TOTAL 139.91 MEAN .38 MAX 3.0 MIN .00 AC-FT 278
WTR YR 1980 TOTAL 29.12 MEAN .080 MAX 13 MIN .00 AC-FT 58

06307528 PRAIRIE DOG CREEK NEAR BIRNEY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH FIELD (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
FEB												
21...	1045	1.7	440	8.4	3.0	1.0	11.3	89	170	72	26	26

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
FEB											
21...	12	.4	11	100	100	4.0	.1	.1	.00	9.4	249

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
FEB											
21...	.34	1.14	.23	.04	1.9	1.9	.25	51	2.8	190	160

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
FEB					
21...	1045	1.0	1.7	45	.21

06307540 HANGING WOMAN CREEK AT STATE LINE, NEAR OTTER, MT

LOCATION.--Lat 45°00'07", long 106°25'29", in NE¼NW¼NE¼ sec.2, T.10 S., R.43 E., Big Horn County, Hydrologic Unit 10090101, 0.5 mi (0.8 km) north of Wyoming-Montana state line, 18.5 mi (29.8 km) southwest of Otter, and 20 mi (32 km) east of Decker.

DRAINAGE AREA.--90.2 mi^2 (233.6 km^2).

PERIOD OF RECORD.--October 1979 to September 1980.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
FEB 20...	1325	9.7	3	2710	7.8	5.0	.0	9.8	78	730	550	95

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
FEB 20...	120	360	5.8	14	180	1300	13	.2	.1	.00	9.1	2020

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
FEB 20...	2.75	52.9	.53	.47	3.6	4.1	.50	58	1.4	140	820

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
FEB 20...	1325	.0	9.7	120	3.1

06307545 WADDLE CREEK NEAR OTTER, MT

LOCATION.--Lat 45°02'59", long 106°27'08", in NW¼SE¼SW¼ sec.15, T.9 S., R.43 E., Big Horn County, Hydrologic Unit 10090101, at county bridge 0.2 mi (0.3 km) upstream from confluence with Hanging Woman Creek, 16.5 mi (26.5 km) southwest of Otter, and 19.5 mi (31.4 km) south of Birney.

DRAINAGE AREA.--51.0 mi^2 (132.1 km^2).

PERIOD OF RECORD.--October 1979 to September 1980.

REMARKS.--Flow not present during station visits.

06307550 TRAIL CREEK NEAR OTTER, MT

LOCATION.--Lat 45°01'24", long 106°17'30", in SW¼SW¼NE¼ sec.26, T.9 S., R.44 E., in Big Horn County, Hydrologic Unit 10090101, 1.05 mi (1.69 km) above Iron Springs Creek, 14 mi (23 km) southwest of Otter, and 21 mi (34 km) west of Moorhead.

DRAINAGE AREA.--17.45 mi^2 (15.83 km^2).

PERIOD OF RECORD.--October 1979 to September 1980.

REMARKS.--Flow not present during station visits.

06307560 EAST TRAIL CREEK NEAR OTTER, MT

LOCATION.--Lat 45°04'25", long 106°24'11", in NW¼SE¼NE¼ sec.12, T.9 S., R.43 E., Bighorn County, Hydrologic Unit 10090101, 1.1 mi (1.8 km) upstream from mouth, and 14 mi (23 km) southwest of Otter.

DRAINAGE AREA.--31.3 mi^2 (81.1 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder, crest-stage gages, and Parshall flume. Altitude of gage is 3,570 ft (1,088 m), from topographic map.

REMARKS.--Water-discharge records good except those for periods of flow, which are poor. No known regulation or diversions above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 216 ft^3/s (6.12 m^3/s) May 18, 1978, gage height, 4.54 ft (1.384 m), from rating curve extended above 35 ft^3/s (0.99 m^3/s); no flow on many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5.9 ft^3/s (0.17 m^3/s) June 15, gage height, 1.98 ft (0.604 m); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.03	.00	.53	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.03	.00	.13	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.03	.00	.01	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.01	.03	.00	.26	.00	.00	.00
8	.00	.00	.00	.00	.00	.02	.03	.00	.23	.00	.00	.00
9	.00	.00	.00	.00	.00	.06	.02	.00	.04	.00	.00	.00
10	.00	.00	.00	.00	.00	.08	.01	.21	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.08	.00	.60	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.06	.01	.33	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.05	.00	.16	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.05	.00	.03	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.05	.01	.00	2.6	.00	.00	.00
16	.00	.00	.00	.00	.00	.03	.02	.00	2.1	.00	.00	.00
17	.00	.00	.00	.00	.00	.06	.03	.00	.67	.00	.00	.00
18	.00	.00	.00	.00	.00	.05	.01	.00	.16	.00	.00	.00
19	.00	.00	.00	.00	.04	.05	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.02	.05	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.01	.05	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.01	.01	.05	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.02	.00	.05	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.01	.00	.05	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.03	.00	.80	.00	.00	.00	.00
31	.00	---	.00	.00	---	.03	---	.96	---	.00	.00	---
TOTAL	.00	.00	.00	.04	.08	1.18	.34	3.09	6.73	.00	.00	.00
MEAN	.000	.000	.000	.001	.003	.038	.011	.10	.22	.000	.000	.000
MAX	.00	.00	.00	.02	.04	.08	.03	.96	2.6	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.08	.2	2.3	.7	6.1	13	.00	.00	.00

CAL YR 1979 TOTAL 9.09 MEAN .025 MAX 1.3 MIN .00 AC-FT 18
WTR YR 1980 TOTAL 11.46 MEAN .031 MAX 2.6 MIN .00 AC-FT 23

06307560 EAST TRAIL CREEK NEAR OTTER, MT--Continued

PERIOD OF RECORD.--Water years 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)
MAR											
27...	0940	.05	1	6350	8.6	4.0	1.0	9.6	77	2100	1600

DATE	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)
MAR											
27...	240	370	800	7.6	13	530	3300	18	.3	.2	.00

DATE	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)
MAR											
27...	6.6	5070	6.90	.68	.06	.07	1.0	1.1	.07	26	.3

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
MAR									
27...	0940	3	4	0	0	130	1	1	10

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
MAR									
27...	10	31	4	440	70	4	1	160	140

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR								
27...	.1	.0	12	7	0	0	50	20

06307560 EAST TRAIL CREEK NEAR OTTER, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER- ATURE, WATER (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
MAR					
27...	0940	1.0	.05	10	.00

06307563 CORRAL CREEK NEAR OTTER, MT

LOCATION.--Lat 45°05'17", long 106°27'51", in SW¼NE¼NE¼ sec.4, T.9 S., R.43 E., Big Horn County, Hydrologic Unit 10090101, at county bridge, 0.2 mi (0.3 km) upstream from confluence with Hanging Woman Creek, 0.6 mi (1.0 km) below Trail Creek, 15.5 mi (24.9 km) southwest of Otter, and 16.5 mi (26.5 km) south of Birney.

DRAINAGE AREA.-- 26.5 mi^2 (68.7 km^2).

PERIOD OF RECORD.--October 1979 to September 1980.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/ AS CA) (00915)
FEB 28...	1020	E.70	1	2500	7.7	7.0	.5	--	--	780	570	83
APR 24...	1340	.01	0	12000	8.2	22.0	18.0	8.4	100	3200	2400	110

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)
FEB 28...	140	330	5.1	14	210	1200	13	.3	--	--	8.0
APR 24...	720	1700	13	25	840	6000	32	.6	.1	.00	3.9

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	IRON DISSOLVED (UG/L AS FE) (01046)
FEB 28...	1920	2.61	E3.63	--	.23	--	--	--	--	--	--	110
APR 24...	9100	12.4	.25	.04	--	.04	1.7	1.7	.05	39	.3	50

DATE	TIME	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BORON, DISSOLVED (UG/L AS B (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON TOTAL RECOVERABLE (UG/L AS FE) (01045)
APR 24	1340	1	0	0	480	0	2	10	0	4	6	680

DATE	LEAD TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
APR 24...	3	3	240	230	.1	9	7	1	150	30

06307563 CORRAL CREEK NEAR OTTER, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT SEDI-MENT, SUS-PENDED (MG/L) (80154)	DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
APR					
24...	1340	18.0	.01	116	.00

06307567 HORSE CREEK NEAR BIRNEY, MT

LOCATION.--Lat 45°07'50", long 106°28'32", in SW¼NE¼NW¼ sec.21, T.8 S., R.43 E., Big Horn County, Hydrologic Unit 10090101, 0.2 mi (0.3 km) above confluence with Hanging Woman Creek, 14 mi (23 km) south of Birney, and 14.5 mi (23.3 km) southwest of Otter.

DRAINAGE AREA.--16.01 mi^2 (41.47 km^2).

PERIOD OF RECORD.--October 1979 to September 1980.

REMARKS.--Flow not present during station visits.

06307570 HANGING WOMAN CREEK BELOW HORSE CREEK, NEAR BIRNEY, MT

LOCATION.--Lat 45°08'02", long 106°29'00", on section line 17-20, T.8 S., R.43 E., Bighorn County, Hydrologic Unit 10090101, at county road bridge, 0.6 mi (1.0 km) downstream from Horse Creek, 0.8 mi (1.3 km) upstream from Little Bar Draw, and 13.2 mi (21.2 km) southeast of Birney.

DRAINAGE AREA.--321 mi^2 (832 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT												
29...	1100	.28	1	4460	8.2	14.0	9.0	9.6	93	1300	860	130
DEC												
19...	1025	.36	0	4890	7.9	5.0	1.0	9.8	70	1600	1000	220
FEB												
20...	1520	4.1	2	1520	7.8	6.0	.0	9.4	74	460	290	63
MAR												
27...	1230	1.9	1	4260	8.3	10.0	8.0	10.4	100	1300	880	150
APR												
29...	1450	.17	0	5230	8.3	19.0	15.5	8.8	100	1600	1100	200
JUN												
05...	0920	.50	0	4600	8.3	19.5	19.5	9.1	112	1600	960	150
26...	1230	.29	0	4810	8.0	30.0	27.0	7.0	99	1400	990	120
JUL												
16...	1250	.22	0	4410	8.7	29.0	25.0	7.2	98	1300	970	92
SEP												
10...	1305	.10	0	4060	8.7	25.0	21.0	8.2	103	1200	820	91

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITU-ENTS, DIS-SOLVED (MG/L) (70301)
OCT												
29...	240	850	7.8	18	440	2300	22	.8	.1	.00	7.2	3890
DEC												
19...	260	680	7.6	15	580	2600	18	.6	.1	.00	15	3970
FEB												
20...	73	180	3.7	12	170	690	8.3	.3	--	--	11	1050
MAR												
27...	220	580	7.1	16	400	2000	15	.8	--	--	6.6	3230
APR												
29...	270	750	8.1	11	500	2700	16	.8	.2	.00	7.8	4350
JUN												
05...	290	670	7.8	14	610	2600	16	.7	.1	.01	20	3770
26...	270	580	6.2	18	420	2500	17	.7	--	--	9.8	3690
JUL												
16...	260	800	7.8	17	330	2100	18	.8	.2	.01	5.8	3320
SEP												
10...	230	600	7.6	16	350	2100	22	.8	.3	.00	1.8	3050

06307570 HANGING WOMAN CREEK BELOW HORSE CREEK, NEAR BIRNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT											
24...	4.95	2.75	.12	.07	.55	.62	.03	8.3	--	380	10
DEC											
19...	5.40	3.86	.22	.03	.52	.55	.01	8.8	.3	370	80
FEB											
20...	1.48	12.1	.22	.06	1.7	1.8	.22	--	--	200	210
MAR											
27...	4.39	13.1	.03	.04	1.1	1.1	.07	--	--	230	340
APR											
24...	5.79	1.06	.03	.02	1.3	1.3	.06	16	1.2	300	20
JUN											
05...	5.13	5.09	.02	.06	.59	.63	.02	12	.3	350	30
26...	5.30	3.05	.04	.07	.82	.90	.04	--	--	400	40
JUL											
16...	4.52	1.57	.04	.01	.99	1.0	.06	11	.2	300	40
SEP											
10...	6.46	.89	.00	.04	.72	.76	.06	14	.8	350	30

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
JUN												
05...	0800	2	1	0	0	0	0	0	0	0	2	150
SEP												
10...	1300	2	6	0	0	1	0	10	10	6	3	1300

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUN												
05...	1	0	100	80	.5	.5	6	0	1	1	20	10
SEP												
10...	13	2	80	10	.5	.5	11	1	1	1	20	20

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]					
[illegible]	[illegible]	.0	[illegible]	[illegible]	[illegible]
[illegible]					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

06307600 HANGING WOMAN CREEK NEAR BIRNEY, MT

LOCATION.--Lat 45°17'57", long 106°30'28", in N½NW¼SE¼ sec.19, T.6 S., R.43 E., Rosebud County, Hydrologic Unit 10090101, on right bank 0.5 mi (0.8 km) downstream from bridge on Birney-Otter road, 1.2 mi (1.9 km) south of Birney, 1.6 mi (2.6 km) downstream from East Fork, and 3.3 mi (5.3 km) upstream from mouth.

DRAINAGE AREA.--470 mi^2 (1,217 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1973 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,150 ft (960 m), from topographic map.

REMARKS.--Water-discharge records poor. Diversions for irrigation of about 1,240 acres (5.02 km^2) above station.

AVERAGE DISCHARGE.--7 years, 5.84 ft^{3}s (0.165 m^3/s), 4,230 acre-ft/yr (5.22 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,060 ft^3/s (58.3 m^3/s) May 19, 1978, gage height, 11.56 ft (3.523 m), from rating curve extended above 360 ft^3/s (10.2 m^3/s) on basis of slope-area measurement of peak flow; minimum, 0.08 ft^3/s (0.002 m^3/s) May 27, 28, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 26 ft^3/s (0.74 m^3/s) Mar. 13, gage height, 3.21 ft (0.978 m), no peaks above base of 100 ft^3/s (2.83 m^3/s), maximum gage height, 3.82 ft (1.164 m) Feb. 22 (backwater from ice); minimum daily discharge, 0.11 ft^3/s (0.003 m^3/s) Aug. 2-5, 7-9, 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.90	1.7	2.0	2.4	2.6	10	2.0	2.9	1.6	.78	.14	.26
2	1.0	1.8	2.0	2.3	3.7	11	2.2	3.1	1.6	.70	.11	.22
3	.90	1.7	2.3	2.2	3.5	7.9	2.7	3.1	1.5	.70	.11	.18
4	1.1	1.7	2.3	2.2	3.4	6.4	4.6	3.1	1.3	.63	.11	.18
5	1.1	1.8	2.1	2.1	3.3	6.1	4.6	3.1	1.3	.63	.11	.18
6	1.1	1.8	2.1	1.8	3.1	5.9	4.3	2.9	1.6	.57	[illegible]	.22
7	1.0	1.7	2.3	1.6	3.0	5.5	4.1	2.7	1.9	.45	.11	.22
8	1.1	1.8	2.5	1.6	3.1	4.6	4.1	2.7	1.8	.45	.11	.22
9	1.3	1.8	2.3	1.6	3.1	4.6	4.1	2.7	1.3	.45	.11	.22
10	1.3	1.8	2.3	1.7	3.0	5.5	4.1	2.9	1.2	.51	.13	.21
11	1.4	1.8	2.1	1.3	2.9	7.1	3.8	2.7	1.1	.45	.13	.23
12	1.3	1.8	2.0	2.0	2.9	11	3.8	2.4	1.1	.40	.11	.25
13	1.3	1.8	2.0	3.0	2.8	17	3.8	2.2	1.0	.40	.13	.23
14	1.3	1.8	2.0	2.8	2.8	17	3.6	2.0	1.0	.51	.16	.23
15	1.4	1.8	1.9	2.7	2.6	9.6	2.9	2.0	1.0	.51	.16	.23
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	---	[illegible]	[illegible]	---	[illegible]	---	[illegible]	---	[illegible]	[illegible]	---
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MEAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MAX	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MIN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
AC-FT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

CAL YR 1979 TOTAL [illegible] MEAN [illegible] MAX [illegible] MIN [illegible] AC-FT [illegible]
WTR YR 1980 TOTAL [illegible] MEAN [illegible] MAX [illegible] MIN [illegible] AC-FT [illegible]

06307600 HANGING WOMAN CREEK NEAR BIRNEY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT												
02...	1045	.91	3	2830	8.2	10.0	12.0	7.7	80	840	440	120
DEC												
11...	0815	2.2	0	3140	8.2	-14.0	.0	11.4	86	1100	540	150
JAN												
15...	0915	2.8	1	3290	7.8	4.5	.0	11.4	87	1000	460	140
MAR												
17...	1650	5.2	1	2600	8.1	4.0	3.0	12.2	102	770	420	110
APR												
14...	1615	3.4	1	3150	8.3	22.0	12.5	11.5	121	1000	580	130
MAY												
21...	1245	1.9	0	2930	8.4	32.0	21.0	7.9	94	900	380	130
JUN												
18...	1445	2.6	1	3220	8.3	29.5	22.0	8.4	107	930	440	110
JUL												
22...	0815	.34	0	2700	8.3	22.0	19.5	5.5	66	820	300	99
SEP												
10...	1100	.21	1	2120	8.4	21.0	15.5	7.0	80	600	150	58

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
OCT												
02...	130	380	5.7	17	400	1200	12	1.0	.0	.00	11	2100
DEC												
11...	170	410	5.4	16	530	1400	12	1.1	--	--	13	2500
JAN												
15...	160	430	5.9	16	550	1400	14	.8	--	--	13	2610
MAR												
17...	120	380	5.3	13	350	1100	11	.6	--	--	12	1980
APR												
14...	170	380	5.2	16	400	1300	13	.8	.0	.06	12	2300
MAY												
21...	140	400	5.8	17	520	1100	14	1.0	--	--	14	2130
JUN												
18...	160	440	6.3	20	480	1400	14	1.0	--	--	14	2400
JUL												
22...	140	350	5.6	18	500	1100	14	1.0	--	--	14	2000
SEP												
10...	110	270	4.8	7.3	460	730	10	0.4	.0	.02	8.0	1470

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) [illegible]	SOLIDS, DISSOLVED (TONS PER DAY) [illegible]	NITROGEN, [illegible]	NITROGEN, [illegible]	NITROGEN, [illegible]	NITROGEN, AMMONIA + ORGANIC [illegible]	PHOSPHORUS, [illegible]	CARBON, ORGANIC [illegible]	CARBON, ORGANIC [illegible]	CARBON, ORGANIC [illegible]	BORON, DISSOLVED [illegible]	IRON, DISSOLVED [illegible]
OCT												
02...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	--	[illegible]	[illegible]	[illegible]	[illegible]
DEC												
11...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	--	--	--	[illegible]	[illegible]
JAN												
15...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	--	--	--	[illegible]	[illegible]
MAR												
17...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	--	--	--	[illegible]	[illegible]
APR												
14...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	--	[illegible]	--	[illegible]	[illegible]
MAY												
21...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	--	[illegible]	--	[illegible]	[illegible]
JUN												
18...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	--	--	--	[illegible]	[illegible]
JUL												
22...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	--	--	--	[illegible]	[illegible]
SEP												
10...	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

06307600 HANGING WOMAN CREEK NEAR BIRNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAY 21...	1245	2	2	0	0	1	1	0
SEP 10...	1100	2	2	0	10	0	0	10

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAY 21...	0	7	2	980	4	1	180	50
SEP 10...	0	6	2	510	6	2	40	20

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY 21...	.1	.0	7	3	1	1	30	0
SEP 10...	.0	.0	7	1	1	1	40	10

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
NOV [illegible]	[illegible]	.0	[illegible]	[illegible]	[illegible]
JAN [illegible]	[illegible]	.0	[illegible]	[illegible]	[illegible]
MAR [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
APR [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MAY [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
JUN [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
JUL [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SEP [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

06307616 TONGUE RIVER AT BIRNEY DAY SCHOOL BRIDGE NEAR BIRNEY, MT

LOCATION.--Lat 45°24'42", long 106°27'26", in SE¼SW¼SW¼ sec.8, T.5 S., R.43 E., Rosebud County, Hydrologic Unit 10090102, on left bank, 60 ft (18 m) upstream from Bureau of Indian Affairs bridge, 0.2 mi (0.3 km) east of Birney Day school, 5.5 mi (8.8 km) downstream from Cook Creek, 6.5 mi (10.5 km) northeast of Birney, and at mile 144.3 (232.2 km).

DRAINAGE AREA.--2,621 mi^2 (6,788 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to September 1980.

GAGE.--Water-stage recorder. Altitude of gage is 3,060 ft (933 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Flow regulated by Tongue River Reservoir (station number 06307000), and many small reservoirs in Wyoming (combined capacity, about 15,000 acre-ft or 18.5 hm^3). Numerous diversions for irrigation above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,370 ft^3/s (38.8 m^3/s) June 15, 1980, gage height, 3.49 ft (1.064 m); minimum daily, 65 ft^3/s (1.84 m^3/s) Jan. 7, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,370 ft^3/s (38.8 m^3/s) June 15 gage height, 3.49 ft (1.064 m); minimum daily, 65 ft^3/s (1.84 m^3/s) Jan. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	240	250	430	210	220	160	304	434	807	497	402	379
2	235	199	450	200	270	180	304	434	921	502	397	320
3	220	201	522	160	270	160	247	434	921	502	411	375
4	200	201	387	110	260	150	280	444	915	502	415	375
5	201	207	113	80	220	150	200	434	915	492	402	375
6	201	201	104	100	190	160	203	429	959	487	406	370
7	201	195	107	65	160	180	280	429	959	487	393	370
8	204	195	126	90	240	190	280	429	997	492	397	370
9	204	277	120	121	200	181	256	421	1010	492	420	375
10	204	290	124	160	200	190	247	434	1080	492	420	375
11	199	319	120	160	185	195	230	434	1090	492	397	375
12	220	323	125	200	170	200	260	434	1090	492	393	327
13	179	216	160	250	160	210	256	425	1090	492	397	298
14	181	197	200	250	150	220	277	420	1070	482	393	302
15	250	201	160	235	130	230	280	420	1170	472	440	306
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1180	472	397	311
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1180	477	397	306
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1180	482	397	302
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1180	477	397	306
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1070	482	397	302
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	946	468	393	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	946	468	393	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	891	458	393	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	879	463	397	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	872	463	397	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	737	463	397	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	626	448	393	311
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	619	448	393	311
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	527	463	388	302
30	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]	[illegible]	[illegible]	512	411	384	302
31	[illegible]	---	[illegible]	[illegible]	---	[illegible]	---	[illegible]	---	397	384	---
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MEAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MAX	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MIN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
AC-FT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

WTR YR 1980 TOTAL [illegible] MEAN [illegible] MAX 1180 MIN 65 AC-FT [illegible]

06307616 TONGUE RIVER AT BIRNEY DAY SCHOOL BRIDGE, NEAR BIRNEY, MT--Continued

WATER-QUALITY RECORD

PERIOD OF RECORD.--October 1979 to September 1980

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 02...	0745	235	1	775	8.4	9.0	13.5	8.8	94	320	120	55
NOV 14...	1415	155	0	929	8.2	11.5	3.0	11.8	97	400	180	66
DEC 10...	1520	193	76	1080	8.2	-1.5	.0	12.2	93	430	150	72
JAN 15...	1245	242	1	1000	8.0	7.5	.0	10.7	82	420	140	75
FEB 11...	1255	190	0	1000	8.2	-1.0	.0	12.1	92	450	170	83
MAR 17...	1415	204	1	960	8.3	8.5	.5	12.9	100	420	170	77
APR 18...	1300	278	1	915	8.4	22.0	11.0	11.8	120	400	190	74
MAY 21...	0905	308	0	733	8.3	18.5	17.0	7.4	85	330	130	60
JUN 18...	1100	1190	1	462	8.5	26.0	20.0	7.2	88	190	58	39
JUL 21...	1310	459	0	452	8.7	30.0	22.5	8.3	106	190	65	40
AUG 13...	0745	413	2	548	8.2	16.0	21.0	6.8	84	230	71	43
SEP 10...	0830	366	1	748	8.4	11.0	15.0	7.9	87	300	120	53

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 02...	44	46	1.1	4.0	200	210	4.0	.4	--	--	4.7	487
NOV 14...	56	60	1.3	5.0	220	280	4.7	.4	--	--	3.6	609
DEC 10...	61	76	1.6	7.1	200	330	5.4	.4	--	--	4.2	725
JAN 15...	58	63	1.3	4.9	200	280	5.0	.4	--	--	8.0	661
FEB 11...	59	59	1.2	5.0	250	290	5.4	.3	.4	.011	7.2	677
MAR 17...	55	60	1.3	5.5	250	270	5.0	.3	--	--	6.4	638
APR 18...	53	50	1.1	7.3	210	270	5.1	.3	--	--	9.0	591
MAY 21...	43	47	1.1	5.7	200	210	4.0	.3	--	--	2.1	482
JUN 18...	22	22	.7	3.1	130	110	2.7	.3	.3	.011	4.5	284
JUL 21...	23	21	.7	3.0	130	100	2.2	.4	--	--	5.7	279
AUG 13...	30	29	.8	3.7	170	130	3.2	.4	--	--	4.5	359
SEP 10...	40	43	1.1	3.8	180	200	3.6	.4	--	--	6.8	484

06307616 TONGUE RIVER AT BIRNEY DAY SCHOOL BRIDGE, NEAR BIRNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 02...	.66	309	.01	.01	.51	.52	.01	4.7	--	110	20
NOV 14...	.83	255	.11	.05	.43	.48	.02	--	--	110	< 10
DEC 10...	.99	378	.04	.01	.52	.53	.01	--	--	120	20
JAN 15...	.90	432	.24	.12	1.1	1.2	.04	--	--	100	10
FEB 11...	.92	347	.47	.06	.46	.52	.01	6.7	.5	110	< 10
MAR 17...	.86	347	.31	.00	1.1	1.1	.00	--	--	100	30
APR 14...	.80	444	.05	.02	1.2	1.2	.08	9.5	--	100	20
MAY 21...	.67	409	.02	.03	.64	.67	.04	8.5	.8	70	10
JUN 18...	.39	912	.09	.06	1.1	1.2	.09	18	.4	20	20
JUL 21...	.37	340	.02	.01	.70	.71	.05	--	--	60	< 10
AUG 13...	.46	379	.00	.03	1.5	1.5	.07	--	--	90	30
SEP 10...	.64	476	.00	.02	.83	.85	.05	10	.7	110	10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAY 21...	0905	2	2	0	< 1	0	< 1	0
JUN 18...	1100	2	2	0	< 1	0	< 1	0
SEP 10...	0830	2	2	0	< 1	1	1	10

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAY 21...	0	6	2	600	3	0	80	10
JUN 18...	0	11	6	2100	3	0	190	10
SEP 10...	0	5	3	630	0	0	70	

06307616 TONGUE RIVER AT BIRNEY DAY SCHOOL BRIDGE, NEAR BIRNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY								
21...	.0	.0	5	1	1	1	50	4
JUN								
18...	.2	.0	4	2	1	0	20	< 3
SEP								
10...	.0	.0	8	1	1	1	70	10

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
02...	0745	13.5	235	9	5.7	--
NOV						
14...	1415	3.0	155	23	9.6	--
DEC						
10...	1520	.0	193	31	16	--
JAN						
15...	1245	.0	242	25	16	88
FEB						
11...	1255	.0	190	6	3.1	81
MAR						
17...	1615	.5	204	17	9.4	82
APR						
16...	1300	11.0	270	26	20	83
MAY						
21...	0905	17.0	308	32	27	93
JUN						
18...	1100	20.0	1190	167	537	81
JUL						
21...	1310	22.5	459	32	40	--
AUG						
13...	0745	21.0	613	11	18	--
SEP						
10...	0830	15.0	386	20	21	92

06307665 OTTER CREEK NEAR OTTER, MT

LOCATION.--Lat 45°08'15", long 106°07'22", in NE¼NE¼SE¼ sec.18, T.8 S., R.46 E., Powder River County, Hydrologic Unit 10090102, 0.2 mi (0.3 km) downstream from Pasture Creek, 5.5 mi (8.8 km) upstream from Bradshaw Creek and 6.2 mi (10.0 km) southeast of Otter.

DRAINAGE AREA.--40.9 mi² (105.9 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 02...	1315	.03	51	6800	8.2	11.5	11.5	10.5	109	2500	2000	200
DEC 11...	1220	.09	0	6700	7.8	-1.0	.0	6.9	53	2400	1900	83
FEB 11...	0820	.07	1	6200	7.9	-4.5	.0	7.2	56	3100	2400	320
MAR 19...	0830	.87	1	5000	7.9	3.0	.5	9.4	75	2000	1500	240
APR 15...	0905	.46	2	6600	8.0	18.5	9.0	8.4	83	2700	2200	290
MAY 22...	0810	.16	0	6000	8.0	21.5	13.0	7.1	77	2500	1900	240
JUN 19...	1130	.13	2	7000	8.2	26.5	19.5	11.4	140	2500	1900	220
JUL 22...	1110	.02	0	6700	8.1	33.0	24.0	7.6	102	2600	2200	150
SEP 10...	1405	.02	1	7400	8.3	28.5	20.0	10.1	126	2500	2000	110

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 02...	480	900	7.9	26	440	3900	27	.5	.2	.00	8.6	5810
DEC 11...	530	900	8.3	19	530	3900	26	.6	--	--	17	5840
FEB 11...	550	840	6.6	16	660	4000	20	.5	.2	.00	22	6170
MAR 19...	340	650	6.3	17	460	2800	21	.3	--	--	11	4360
APR 15...	480	810	6.7	20	550	3600	24	.6	.2	.00	9.3	5700
MAY 22...	460	840	7.4	22	580	3500	20	.6	.2	.00	15	5650
JUN 19...	470	870	7.6	20	571	3600	--	.7	--	--	11	--
JUL 22...	540	920	7.9	25	600	3800	36	.7	--	--	8.7	5810
SEP 10...	540	850	8.3	18	500	3700	32	.5	.1	.00	8.7	5650

06307665 OTTER CREEK NEAR OTTER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT												
02...	7.90	.47	.04	.03	.46	.49	.02	--	14	.4	790	30
DEC												
11...	7.94	1.42	.13	.12	1.1	1.2	.01	--	--	--	640	100
FEB												
11...	8.39	1.17	.13	.18	.82	1.0	.03	--	19	.7	700	60
MAR												
19...	5.93	10.2	.12	.28	.92	1.2	.06	--	--	--	450	770
APR												
15...	7.86	7.18	.01	.00	1.3	1.3	.04	--	26	--	510	50
MAY												
22...	7.41	2.35	.02	.04	.74	.78	.03	--	16	.6	630	50
JUN												
19...	--	--	.00	.05	.81	.86	.07	--	--	--	700	60
JUL												
22...	7.90	.31	.00	.00	1.7	1.7	.02	--	--	--	780	80
SEP												
10...	7.68	.31	.00	.03	.85	.88	.01	22	22	.4	810	50

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAY												
22...	0810	2	2	0	0	0	1	10	0	8	2	560
SEP												
10...	1405	1	1	0	10	0	0	10	0	7	1	140

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY												
22...	3	0	500	460	.1	.0	10	2	0	0	20	20
SEP												
10...	10	2	20	30	.0	.0	8	1	1	1	40	40

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
02...	1315	11.5	.03	60	.00
DEC					
11...	1000	.0	.09	18	.00
FEB					
11...	0930	.0	.07	22	.00
MAR					
19...	0930	.0	.87	42	.10
APR					
15...	0900	8.0	.46	80	.10
MAY					
22...	0810	13.0	.16	67	.03
JUN					
19...	1130	19.0	.13	67	.00
JUL					
22...	1130	24.0	.02	16	.00
SEP					
10...	1405	20.0	.02	6	.00

06307717 OTTER CREEK BELOW FIFTEENMILE CREEK, NEAR OTTER, MT

LOCATION.--Lat 45°23'29", long 106°08'37", in N½ sec.23, T.5 S., R.45 E., Powder River County, Hydrologic Unit 10090102, on county road bridge, 1.0 mi (1.6 km) downstream from Fifteenmile Creek, and 13.1 mi (21.1 km) northeast of Otter.

DRAINAGE AREA.--451 mi^2 (1,167 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 03...	0810	2.7	0	3200	8.3	.0	9.5	8.5	82	1200	710	95
DEC 11...	1415	3.8	0	3260	8.3	-1.0	.5	13.1	101	1200	620	100
FEB 12...	1120	4.4	2	3040	8.1	3.0	.0	12.4	95	1200	670	130
MAR 19...	1140	11	1	2500	8.0	5.5	1.0	10.1	80	--	--	--
APR 15...	1315	9.6	1	3460	8.3	16.0	14.0	9.4	102	1300	760	130
MAY 22...	1030	3.4	0	3000	8.6	29.5	20.0	10.8	133	1000	640	95
JUN 19...	1350	2.8	2	3100	8.7	27.0	20.5	9.7	120	950	580	51
JUL 22...	1330	1.4	1	3050	8.7	37.5	24.5	12.3	164	990	580	60
SEP 11...	0815	1.5	2	3100	8.5	13.0	16.5	5.2	60	930	560	61

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 03...	230	410	5.2	21	470	1600	16	.6	.1	.00	4.3	2660
DEC 11...	220	390	5.0	18	540	1600	11	.7	--	--	15	2680
FEB 12...	210	370	4.7	15	520	1600	13	.6	--	--	15	2570
MAR 19...	--	--	--	--	380	1100	12	.3	--	--	12	1250
APR 15...	230	400	4.9	17	510	1600	13	.6	.1	.00	7.6	2710
MAY 22...	210	430	5.6	15	350	1600	13	.6	.1	.00	1.2	2330
JUN 19...	200	400	5.6	17	370	1300	12	.6	--	--	.6	2200
JUL 22...	217	400	5.5	25	410	1600	20	.5	--	--	.5	2200
SEP 11...	200	380	5.2	9.7	380	1200	16	.6	.0	.00	.6	2090

06307717 OTTER CREEK BELOW FIFTEENMILE CREEK, NEAR OTTER, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT												
03...	3.62	10.4	.02	.02	.64	.66	.01	--	8.0	.6	620	20
DEC												
11...	3.37	25.4	.01	.01	1.1	1.1	.01	--	--	--	590	60
FEB												
12...	3.35	29.3	.20	.04	.64	.68	.01	--	--	--	520	30
MAR												
19...	1.84	42.1	.10	.05	1.1	1.2	.06	--	--	--	250	--
APR												
11...	3.45	70.2	.03	.02	1.1	1.1	.05	--	11	--	270	60
MAY												
22...	3.17	21.4	.08	.06	.71	.77	.03	--	10	.3	390	20
JUN												
19...	2.99	16.6	.02	.05	.88	.93	.03	--	--	--	630	90
JUL												
22...	3.20	8.88	.04	.02	1.2	1.2	.04	--	--	--	660	90
SEP												
11...	2.77	8.26	.30	.02	1.2	1.2	.02	23	23	.3	350	20

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAY												
22...	1530	2	2	0	0	0	1	0	0	5	3	1900
SEP												
11...	0815	2	2	0	0	0	0	1	0	6	1	1100

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY												
22...	2	0	60	20	.1	.1	10	1	1	1	30	20
SEP												
11...	5	0	30	30	.0	.0	5	3	0	0	20	20

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
03...	1410	8.0	2.7	16	.12
DEC					
11...	1515	.0	3.8	100	1.0
FEB					
12...	1130	.0	4.0	6	.06
MAR					
19...	1155	1.0	11	20	.59
APR					
11...	1515	10.0	8.0	60	1.3
MAY					
22...	1630	20.0	3.0	7	.06
JUN					
19...	1200	20.0	2.0	9	.05
JUL					
22...	1530	20.0	1.0	5	.02
SEP					
11...	0815	16.0	1.0	5	.02

06307735 HOME CREEK NEAR ASHLAND, MT

LOCATION.--Lat 45°32'35", long 106°11'39", in SE¼NE¼SE¼ sec.29, T.3 S., R.45 E., Powder River County, Hydrologic Unit 10090102, 150 ft (45.7 m) west of Otter Creek road culvert, 1.0 mi (1.6 km) upstream from mouth, approximately 2.0 mi (3.2 km) south of Highway 212, and 5.1 mi (8.2 km) southeast of Ashland.

DRAINAGE AREA.--58.7 mi^2 (152.0 km^2).

PERIOD OF RECORD.--Water years 1977 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT												
03...	1045	.04	0	3650	8.0	13.5	7.0	7.7	70	870	240	69
DEC												
12...	1000	.09	0	3730	7.6	-.5	.0	5.6	43	1100	460	86
FEB												
12...	1245	.01	2	3100	7.9	3.5	.0	7.4	56	1000	460	98
MAR												
19...	1300	.23	1	3350	8.0	8.0	4.0	9.3	80	970	390	93
APR												
15...	1455	.15	13	3440	8.1	17.0	12.5	9.2	96	1100	490	100
MAY												
20...	1330	.07	1	3180	8.1	29.0	19.5	6.4	77	1100	400	110
JUN												
19...	1515	.07	13	3430	8.1	26.5	19.0	7.6	91	1100	390	110
JUL												
24...	0720	.01	0	3480	8.0	17.5	15.0	4.5	50	1100	430	110
SEP												
09...	1520	.03	0	3950	8.2	27.5	17.0	7.7	87	1100	450	91

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
OCT												
03...	170	410	6.0	21	630	1500	8.3	1.2	.1	.00	19	2580
DEC												
12...	220	530	6.9	18	660	1500	11	.8	--	--	18	2780
FEB												
12...	190	450	6.1	15	570	1400	8.7	.7	--	--	26	2530
MAR												
19...	180	430	6.0	18	580	1300	11	.7	--	--	13	2400
APR												
15...	210	480	6.3	18	620	1500	10	1.1	.1	.01	12	2700
MAY												
20...	200	450	5.9	20	700	1400	8.3	1.2	.1	.00	12	2620
JUN												
19...	200	490	6.4	17	710	1400	4.5	1.3	--	--	14	2660
JUL												
24...	190	490	6.6	20	630	1400	9.5	.9	--	--	14	2610
SEP												
09...	210	530	7.0	27	650	1600	10	1.1	.0	.01	12	2870

06307735 HOME CREEK NEAR ASHLAND, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT											
03...	3.51	.28	.38	.02	.96	.98	.05	10	2.1	690	10
DEC											
12...	3.78	.68	.61	.15	.69	.84	.02	--	--	600	170
FEB											
12...	3.44	.07	1.5	.10	.39	.49	.02	--	--	410	80
MAR											
19...	3.26	1.49	.25	.20	1.2	1.4	.14	--	--	490	230
APR											
15...	3.67	1.09	.15	.04	1.1	1.1	.07	17	--	590	60
MAY											
20...	3.56	.50	.17	.23	1.1	1.3	.13	14	--	870	40
JUN											
19...	3.62	.50	.17	.12	.98	1.1	.08	--	--	810	70
JUL											
24...	3.55	.07	.37	.20	1.0	1.2	.10	--	--	570	60
SEP											
09...	3.90	.23	.55	.07	.81	.88	.06	13	.2	600	50

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAY												
20...	1330	4	3	0	0	1	0	0	0	8	4	1700
SEP												
09...	1520	4	2	0	0	1	0	10	10	5	4	670

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY												
20...	2	0	520	370	.0	.0	8	5	1	1	120	30
SEP												
09...	5	4	430	400	.0	.0	11	3	1	1	70	30

06307735 HOME CREEK NEAR ASHLAND, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT 03...	1045	7.0	.04	13	.00
DEC 12...	1000	.0	.09	52	.01
FEB 12...	1245	.0	.01	4	.00
MAR 19...	1300	4.0	.23	18	.01
APR 15...	1455	12.5	.15	16	.01
MAY 20...	1330	19.5	.07	81	.02
JUN 19...	1515	19.0	.07	54	.01
JUL 24...	0720	15.0	.01	19	.00
SEP 09...	1520	17.0	.03	45	.00

06307740 OTTER CREEK AT ASHLAND, MT

LOCATION.--Lat 45°35'18", long 106°15'17", in NE¼NE¼SE¼ sec.11, T.3 S., R.44 E., Rosebud County, Hydrologic Unit 10090102, on left bank 200 ft (60 m) downstream from bridge on U.S. Highway 212, 0.3 mi (0.5 km) southeast of Ashland, and at mile 2.7 (4.3 km), revised.

DRAINAGE AREA.--707 mi^2 (1,831 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1972 to current year.

GAGE.-- Water-stage recorder. Altitude of gage is 2,920 ft (890 m), from topographic map.

REMARKS.--Water-discharge records fair except those below 2.0 ft^3/s (0.057 m^3/s) and those for winter period, which are poor. Diversions for irrigation of about 4,200 acres (17.0 km^2) above station.

AVERAGE DISCHARGE.--8 years, 8.28 ft^3/s (0.234 m^3/s), 6,000 acre-ft/yr (7.40 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 425 ft^3/s (12.0 m^3/s) Mar. 21, 1978, gage height, 8.65 ft (2.637 m), backwater from beaver dam; no flow on many days in 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, undetermined, probably occurred on Mar. 18, and was the only peak above base of 50 ft^3/s (1.42 m^3/s); maximum gage height, 5.13 ft (1.564 m) Feb. 26 (backwater from ice); minimum daily discharge, 0.24 ft^3/s (0.007 m^3/s) Aug. 8, 10-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	4.7	6.8	6.2	6.8	5.4	9.9	6.7	3.5	2.0	.35	.87
2	1.5	4.7	7.4	5.8	7.0	7.0	12	6.7	3.5	1.9	.35	.87
3	1.5	4.8	8.0	6.0	6.8	8.8	10	6.7	3.4	1.6	.29	.68
4	1.7	5.0	9.0	5.6	6.6	7.6	9.1	6.9	3.2	1.5	.29	.78
5	2.1	5.6	8.0	5.4	6.4	6.4	9.9	6.7	3.0	1.4	.29	.68
6	2.2	5.4	7.6	4.5	6.3	7.0	10	6.2	3.2	1.3	.29	.58
7	2.5	5.7	7.4	4.1	6.2	7.8	9.9	6.0	3.9	1.2	.29	.68
8	2.4	5.4	7.3	4.0	6.4	8.4	9.4	6.0	3.9	1.1	.24	.58
9	2.5	5.7	7.2	4.1	6.3	9.0	8.6	6.0	3.7	.96	.29	.58
10	2.6	6.6	7.0	4.3	6.3	10	9.4	5.8	3.5	.87	.24	.58
11	2.5	8.0	6.6	3.9	6.4	11	10	5.8	3.5	.87	.24	.58
12	2.8	7.0	6.1	5.6	6.0	12	9.4	5.6	3.0	.68	.24	.78
13	2.8	6.8	5.6	5.8	5.7	14	9.7	5.6	3.0	.68	.24	.68
14	2.8	5.9	5.2	5.7	5.0	16	9.7	5.8	3.0	.50	.24	.58
15	3.0	6.3	4.0	5.6	4.5	18	9.9	5.8	4.3	.50	.35	.58
16	3.3	6.3	3.0	5.6	6.4	20	9.7	5.6	3.9	.50	.42	.68
17	3.3	6.3	4.0	5.5	8.0	23	9.4	5.8	3.2	.42	.50	.68
18	3.5	6.9	5.0	5.2	9.6	24	9.4	5.6	2.9	.42	.50	.68
19	3.5	6.9	5.8	5.0	11	20	9.4	5.2	3.2	.50	.58	.68
20	3.6	6.6	6.2	4.9	11	18	8.9	4.9	6.0	.50	.50	.68
21	3.9	6.0	6.0	5.2	11	16	8.6	4.7	3.4	.42	.58	.78
22	3.9	6.6	6.0	6.0	10	14	8.1	4.3	2.2	.42	.78	.87
23	4.1	7.1	5.4	7.8	9.8	13	7.6	3.5	2.6	.42	.96	.68
24	4.2	6.5	5.2	8.1	9.4	15	7.4	3.0	2.4	.35	1.3	.68
25	4.1	6.0	6.0	6.4	9.3	12	7.1	3.4	4.7	.35	1.4	.78
26	4.1	6.4	5.9	4.5	30	9.7	6.9	3.5	7.1	.42	1.4	.78
27	4.1	6.2	5.8	4.4	50	10	6.9	3.2	4.7	.42	1.3	1.2
28	4.3	5.8	6.0	4.6	30	11	6.7	3.0	3.5	.42	1.1	1.1
29	4.5	6.0	5.9	4.9	16	10	6.7	3.0	3.0	.35	.87	.96
30	4.5	6.4	5.8	5.1	---	9.7	6.7	3.2	2.4	.35	.78	.68
31	4.5	---	6.0	5.6	---	9.1	---	3.5	---	.42	.58	---
TOTAL	97.9	183.6	191.2	165.4	314.2	382.9	266.4	157.7	106.8	23.74	17.78	21.99
MEAN	3.16	6.12	6.17	5.34	10.8	12.4	8.88	5.09	3.56	.77	.57	.73
MAX	4.5	8.0	9.0	8.1	50	24	12	6.9	7.1	2.0	1.4	1.2
MIN	1.5	4.7	3.0	3.9	4.5	5.4	6.7	3.0	2.2	.35	.24	.58
AC-FT	194	364	379	328	623	759	528	313	212	47	35	44

CAL YR 1979 TOTAL 3553.00 MEAN 9.73 MAX 110 MIN 1.5 AC-FT 7050
WTR YR 1980 TOTAL 1929.61 MEAN 5.27 MAX 50 MIN .24 AC-FT 3830

06307740 OTTER CREEK AT ASHLAND, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT 03...	1250	1.7	0	2880	8.4	17.0	11.5	9.0	90	1100	610	110
DEC 12...	0810	6.1	1	3310	8.3	-5.0	.0	12.4	94	1100	520	89
JAN 17...	0845	5.5	0	3400	7.9	-6.0	.0	11.2	85	1200	580	140
MAR 18...	1315	20	1	2500	8.3	13.0	.5	13.3	104	860	460	97
APR 17...	0910	9.5	0	3400	8.3	14.0	10.0	7.8	76	1100	590	110
MAY 19...	1245	5.0	2	3100	8.5	26.0	14.5	8.4	91	690	200	78
JUN 20...	0835	6.3	40	3100	8.6	19.5	19.0	6.2	74	860	440	49
JUL 23...	1400	.39	0	3200	8.5	42.0	29.0	9.3	135	960	430	70
SEP 09...	1330	.63	0	2900	8.6	21.5	16.0	10.1	111	830	290	70

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
OCT 03...	200	510	6.7	21	490	1300	15	.8	.1	.00	7.6	2460
DEC 12...	210	450	5.9	18	570	1400	14	.8	--	--	14	2540
JAN 17...	210	470	5.9	20	630	1500	15	.9	--	--	19	2750
MAR 18...	150	270	4.0	16	400	1000	10	.5	--	--	12	1800
APR 17...	200	440	5.8	19	510	1300	15	.8	.1	.01	5.9	2400
MAY 19...	120	420	7.0	20	490	--	--	--	--	--	5.1	--
JUN 20...	180	420	6.2	17	420	1300	11	.8	--	--	4.6	2240
JUL 23...	190	450	6.3	22	530	1300	15	1.0	--	--	4.9	2370
SEP 09...	160	390	5.9	28	520	1100	14	.9	.0	.02	6.1	2090

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT 03...	3.35	11.3	.01	.02	.82	.84	.02	8.0	1.5	660	40
DEC 12...	3.45	41.8	.19	.00	.57	.57	.02	--	--	420	60
JAN 17...	3.74	40.8	.53	.13	.97	1.1	.02	--	--	50	40
MAR 18...	2.45	97.2	.30	.02	.59	.61	.04	--	--	290	60
APR 17...	3.26	61.6	.00	.13	.87	1.0	.07	14	--	420	60
MAY 19...	--	--	.13	.08	.84	.92	.09	--	--	460	20
JUN 20...	3.05	38.1	.03	.05	1.2	1.2	.11	--	--	460	30
JUL 23...	3.22	2.50	.02	.02	2.6	2.6	.11	--	--	590	30
SEP 09...	2.84	3.56	.00	.02	1.1	1.1	.05	14	.6	550	30

06307740 OTTER CREEK AT ASHLAND, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAY 19...	1245	1	2	0	0	0	1	0
SEP 09...	1330	3	3	0	0	0	0	10

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAY 19...	0	8	1	1300	7	2	130	40
SEP 09...	0	4	1	540	8	0	50	20

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY 19...	.0	.0	14	3	1	0	40	10
SEP 09...	.0	.0	8	2	1	1	20	10

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT 03...	1250	11.5	1.7	12	.06
DEC 12...	0810	.0	6.1	75	1.2
JAN 17...	0845	.0	5.5	71	1.1
MAR 18...	1315	.5	20	26	1.4
APR 17...	0910	10.0	9.5	119	3.1
MAY 19...	1245	14.5	5.0	159	2.1
JUN 20...	0835	19.0	6.3	79	1.3
JUL 23...	1400	29.0	.39	107	.11
SEP 09...	1330	16.0	.63	85	.14

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND, MT

LOCATION.--Lat 45°52'18", long 106°11'17", in NE¼SW¼NW¼ sec.6, T.1 N., R.45 E., Custer County, Hydrologic Unit 10090102, on left bank 3.1 mi (5.0 km) downstream from Goodale Creek, 6.5 mi (10.5 km) downstream from Brandenberg Bridge, 21 mi (34 km) north of Ashland, and at mile 77.6 (124.9 km).

DRAINAGE AREA.--4,062 mi^2 (10,521 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1973 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,710 ft (826 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Flow regulated by Tongue River Reservoir (station number 06307000), and many small reservoirs in Wyoming (combined capacity, about 15,000 acre-ft or 18.5 hm^3). Diversions for irrigation of about 73,000 acres (295 km^2) above station.

AVERAGE DISCHARGE.--7 years, 542 ft^3/s (15.35 m^3/s), 392,700 acre-ft/yr (484 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,340 ft^3/s (236 m^3/s) May 22, 1978, gage height, 9.96 ft (3.036 m); minimum daily, 45 ft^3/s (1.27 m^3/s) Nov. 30, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,150 ft^3/s (32.57 m^3/s) June 16, gage height, 4.54 ft (1.384 m); minimum daily, 65 ft^3/s (1.84 m^3/s) Jan. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	268	293	210	240	220	200	384	395	554	460	347	366
2	265	292	340	240	240	200	392	402	654	423	344	359
3	265	289	490	180	240	190	395	408	755	415	354	330
4	262	251	470	150	240	180	350	407	773	423	362	330
5	240	260	510	110	230	180	287	411	784	419	369	349
6	246	262	310	85	220	200	310	400	798	415	369	340
7	243	259	200	65	200	200	309	402	838	407	373	347
8	238	241	220	85	200	190	306	399	863	415	362	341
9	238	274	240	130	220	190	304	390	915	419	369	344
10	243	265	160	140	210	210	305	390	916	423	365	347
11	240	314	100	160	200	220	294	393	967	427	423	354
12	238	346	110	190	180	210	256	395	970	415	396	368
13	243	354	150	220	175	220	288	393	965	427	381	341
14	257	335	200	230	160	230	286	388	945	427	372	305
15	220	274	160	225	160	210	296	368	1010	411	378	292
16	254	255	80	210	150	230	303	348	1030	407	436	295
17	282	258	180	200	160	260	304	341	1080	403	400	290
18	288	247	270	190	200	300	302	346	1050	407	385	293
19	291	339	270	180	220	290	279	327	1070	395	364	296
20	288	390	265	180	220	310	229	282	1060	399	361	291
21	291	270	250	190	210	290	291	286	962	399	364	300
22	291	200	200	200	200	295	313	280	848	395	377	297
23	291	210	170	210	210	285	305	271	823	388	379	298
24	291	350	190	210	210	308	234	262	774	384	405	291
25	291	420	220	200	210	329	251	281	750	388	380	294
26	291	380	235	170	260	315	356	280	733	384	377	300
27	290	340	230	160	340	304	277	310	660	388	377	299
28	288	250	220	150	260	312	293	344	544	376	378	300
29	292	180	220	150	230	316	387	460	524	376	360	299
30	296	190	220	160	---	353	395	513	487	384	344	289
31	298	---	220	190	---	358	---	494	---	369	387	---
TOTAL	8319	8588	7310	5400	6175	7885	9281	11366	25102	12568	11638	9545
MEAN	268	286	236	174	213	254	309	367	837	405	375	318
MAX	298	420	510	240	340	358	395	513	1080	460	436	368
MIN	220	180	80	65	150	180	229	262	487	369	344	289
AC-FT	16500	17030	14500	10710	12250	15640	18410	22540	49790	24930	23080	18930

CAL YR 1979 TOTAL 152006 MEAN 416 MAX 1380 MIN 80 AC-FT 301500
WTR YR 1980 TOTAL 123177 MEAN 337 MAX 1080 MIN 65 AC-FT 244300

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND, MT--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected from Brandenberg Bridge on county road, 1.7 mi (2.7 km) north of Brandenberg and 6.5 mi (10.5 km) upstream from gaging station.

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1974 to current year.

REMARKS.--Sediment loads estimated Dec. 15-31. Flow affected by ice during most of winter months. Once-daily water temperatures are available in the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 6,400 mg/L July 26, 1979; minimum daily mean, 1 mg/L Oct. 18, 24, 1976.
SEDIMENT LOADS: Maximum daily, 27,200 tons (24,700 megagrams) May 19, 1978; minimum daily, 0.47 ton (0.43 megagram) Nov. 15-17, 1975.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 919 mg/L Aug. 26; minimum daily mean, 2 mg/L Nov. 15.
SEDIMENT LOADS: Maximum daily, 1,980 tons (1,800 megagrams) June 17; minimum daily, 1.5 tons (1.4 megagrams) Nov. 15.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 05...	0930	233	0	970	8.6	16.0	12.0	9.4	95	360	130	61
DEC 20...	1500	263	3	1110	8.3	5.0	.5	12.2	94	490	180	86
JAN 16...	1045	203	0	1100	8.2	4.0	.0	12.1	91	490	180	89
MAR 18...	0800	238	1	1010	8.3	.0	.0	12.1	92	410	160	72
APR 16...	0730	318	0	1040	8.3	11.0	10.0	8.9	86	430	190	74
MAY 20...	0745	295	1	840	8.4	19.0	14.0	8.0	85	370	160	65
JUN 17...	0800	1120	0	483	8.3	17.0	17.5	7.4	85	200	34	42
JUL 23...	0710	389	0	539	8.5	17.5	23.5	6.2	80	220	59	43
SEP 09...	0800	330	0	740	8.0	8.5	13.5	8.4	87	290	110	52

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 05...	50	62	1.4	5.9	230	270	6.1	.4	.0	.00	6.4	600
DEC 20...	67	80	1.6	5.6	310	370	5.5	.3	--	--	5.7	807
JAN 16...	65	74	1.5	5.7	310	320	5.1	.6	--	--	7.8	754
MAR 18...	56	78	1.7	6.1	250	320	5.4	.3	--	--	5.7	694
APR 16...	60	75	1.6	7.7	240	340	5.6	.4	.0	.01	2.8	710
MAY 20...	50	59	1.3	6.0	210	260	4.7	.3	.0	.00	3.0	574
JUN 17...	24	26	.8	3.6	170	110	1.9	.3	--	--	7.4	317
JUL 23...	27	29	.9	3.4	160	110	2.1	.3	--	--	5.0	316
SEP 09...	38	46	1.2	5.1	180	200	3.4	.3	.0	.00	7.2	460

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT											
05...	.82	377	.02	.03	.38	.41	.01	5.1	.3	130	< 10
DEC											
20...	1.10	573	.01	.00	.69	.69	.02	--	--	130	< 10
JAN											
16...	1.03	413	.23	.02	.98	1.0	.24	--	--	120	< 10
MAR											
18...	.94	446	.19	.00	.86	.86	.03	--	--	110	30
APR											
16...	.97	610	.01	.00	1.1	1.1	.06	10	--	120	20
MAY											
20...	.78	457	.03	.01	.72	.73	.05	7.0	.7	80	< 10
JUN											
17...	.43	959	.29	.06	1.6	1.7	.31	--	.7	60	< 10
JUL											
23...	.43	332	.00	.03	2.4	2.4	.06	--	--	70	10
SEP											
09...	.63	410	.00	.03	.66	.69	.08	8.1	.9	150	20

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAY								
20...	0745	2	2	0	< 1	1	< 1	0
SEP								
09...	0800	3	2	0	< 1	0	< 1	0

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAY								
20...	0	6	3	800	2	0	100	7
SEP								
09...	0	6	3	1600	5	4	100	4

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY								
20...	.1	.0	7	3	1	0	20	5
SEP								
09...	.0	.0	10	2	0	0	40	< 3

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 05...	0930	12.0	233	11	6.9	--	--	--	--	--	--	97
JAN 16...	1045	.0	203	25	14	--	--	--	--	--	--	77
FEB 13...	0945	.0	169	19	8.7	--	--	--	--	--	--	83
APR 16...	0730	10.0	318	54	46	--	--	--	--	--	--	91
MAY 20...	0745	14.0	295	46	37	--	--	--	--	--	--	95
JUN 17...	0800	17.5	1120	617	1870	46	77	92	96	99	100	--
JUL 23...	0710	23.5	389	35	37	--	--	--	--	--	--	89
AUG 12...	0745	19.0	379	517	529	--	--	--	--	--	--	100

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	24	17	9	7.1	51	29	95	62	48	29	22	12
2	22	16	8	6.3	81	74	46	30	33	21	14	7.6
3	21	15	8	6.2	104	138	25	12	32	21	16	8.2
4	17	12	8	5.4	124	157	28	11	34	22	21	10
5	13	8.4	8	5.6	88	121	28	8.3	35	22	13	6.3
6	17	11	5	3.5	52	44	32	7.3	29	17	15	8.1
7	21	14	7	4.9	62	33	40	7.0	27	15	21	11
8	21	13	12	7.8	86	51	49	11	43	23	24	12
9	12	7.7	14	10	62	40	59	21	38	23	20	10
10	13	8.5	9	6.4	42	18	68	26	26	15	24	14
11	23	15	9	7.6	58	16	75	32	34	18	44	26
12	18	12	12	11	52	15	74	38	41	20	30	17
13	15	9.8	19	18	68	28	58	34	35	17	45	27
14	16	11	27	24	50	27	51	32	59	25	36	22
15	18	11	2	1.5	---	24	49	30	49	21	35	20
16	18	12	8	5.5	---	12	47	27	63	26	42	26
17	17	13	8	5.6	---	27	48	26	59	25	68	48
18	13	10	7	4.7	---	40	40	21	49	26	93	75
19	14	11	10	9.2	---	40	38	18	37	22	120	94
20	16	12	22	23	---	39	45	22	33	20	134	112
21	19	15	42	31	---	37	37	19	38	22	134	105
22	23	18	52	28	---	30	30	16	38	21	138	110
23	17	13	44	25	---	25	51	29	32	18	104	80
24	13	10	78	74	---	28	69	39	36	20	87	72
25	26	20	113	128	---	33	66	36	30	17	75	67
26	47	37	74	76	---	35	62	28	26	18	68	58
27	19	15	50	46	---	34	58	25	30	28	60	49
28	9	7.0	75	51	---	33	55	22	30	21	63	53
29	10	7.9	57	28	---	33	54	22	28	17	73	62
30	9	7.2	33	17	---	33	56	24	---	---	74	71
31	9	7.2	---	---	---	33	62	32	---	---	77	74
TOTAL	---	396.7	---	677.3	---	1327	---	767.6	---	610	---	1367.2

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	70	73	87	93	230	344	90	112	92	86	139	137
2	68	72	87	94	292	516	81	93	56	52	106	103
3	68	73	90	99	357	728	75	84	55	53	86	77
4	72	68	92	101	375	783	75	86	67	65	97	86
5	73	57	92	102	320	677	80	91	69	69	93	88
6	62	52	79	85	350	754	76	85	58	58	84	77
7	51	43	69	75	410	928	69	76	47	47	89	83
8	49	40	72	78	390	909	74	83	53	52	77	71
9	42	34	79	83	355	877	76	86	53	53	85	79
10	41	34	87	92	410	1010	70	80	50	49	77	72
11	57	45	92	98	451	1180	62	71	53	61	76	73
12	72	50	81	86	396	1040	60	67	673	720	70	70
13	72	56	74	79	360	938	62	71	400	411	56	52
14	61	47	79	83	357	911	62	71	88	88	48	40
15	60	48	85	84	420	1150	52	58	78	80	44	35
16	51	42	83	78	680	1890	40	44	146	172	45	36
17	52	43	69	64	680	1980	40	44	651	703	44	34
18	64	52	83	78	420	1190	48	53	405	421	37	29
19	80	60	79	70	408	1180	43	46	186	183	31	25
20	76	47	57	43	400	1140	40	43	145	141	31	24
21	90	71	71	55	243	631	34	37	114	112	45	36
22	96	81	80	60	208	476	44	47	110	112	47	38
23	84	69	67	49	245	544	41	43	123	126	40	32
24	69	44	71	50	234	489	57	59	146	160	41	32
25	82	62	73	55	207	419	77	81	628	644	44	35
26	118	113	70	53	190	376	81	84	919	935	45	36
27	68	51	82	69	170	303	80	84	285	290	44	36
28	74	59	103	96	123	181	74	75	144	147	45	36
29	116	121	200	248	96	136	58	59	131	127	48	39
30	94	100	219	303	85	112	54	56	116	108	49	38
31	---	---	177	236	---	---	74	74	160	167	---	---
TOTAL	---	1807	---	2939	---	23792	---	2143	---	6492	---	1649

TOTAL LOAD FOR YEAR: 43967.8 TONS.

06308400 PUMPKIN CREEK NEAR MILES CITY, MT

LOCATION.--Lat 46°13'42", long 105°41'24", in SW1/4 NE1/4 SW1/4 sec.35, T.6 N., R.48 E., Custer County, Hydrologic Unit 10090102, on right bank 12 ft (4 m) upstream from bridge on U.S. Highway 312, 7.5 mi (12.1 km) upstream from mouth, and 16 mi (26 km) southeast of Miles City.

DRAINAGE AREA.--697 mi^2 (1,805 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,490 ft (760 m), from topographic map.

REMARKS.--Water-discharge records good except those for periods of flow, which are poor. Diversions for irrigation of about 3,600 acres (14.5 km^2) above station.

AVERAGE DISCHARGE.--8 years, 18.4 ft^3/s (0.521 m^3/s), 13,330 acre-ft/yr (16.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,890 ft^3/s (81.8 m^3/s) May 6, 1975, gage height, 12.27 ft (3.740 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 36 ft^3/s (1.02 m^3/s) June 16, gage height, 2.77 ft (0.844 m), no peaks above base of 100 ft^3/s (2.83 m^3/s), no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.10	.17	.10	.00	.00	.41	.00	.00	.00	.00	.00
2	.00	.12	.17	.10	.00	.00	.41	.00	.00	.00	.00	.00
3	.00	.12	.19	.10	.00	.00	.45	.00	.00	.00	.00	.00
4	.00	.12	.19	.10	.00	.00	.41	.00	.00	.00	.00	.00
5	.00	.09	.19	.08	.00	.00	.38	.00	.00	.00	.00	.00
6	.00	.09	.19	.05	.00	.00	.35	.00	.00	.00	.00	.00
7	.00	.09	.17	.02	.00	.00	.32	.00	.00	.00	.00	.00
8	.00	.09	.17	.00	.00	.00	.26	.00	.00	.00	.00	.00
9	.00	.09	.17	.00	.00	.05	.23	.00	.00	.00	.00	.00
10	.00	.11	.17	.00	.00	.10	.29	.00	.00	.00	.00	.00
11	.00	.14	.17	.00	.00	.20	.35	.00	.00	.00	.00	.00
12	.00	.18	.17	.00	.00	.30	.38	.00	.00	.00	.00	.00
13	.00	.22	.17	.00	.00	.40	.38	.00	.00	.00	.00	.00
14	.00	.25	.17	.00	.00	.50	.29	.00	.00	.00	.00	.00
15	.00	.29	.12	.00	.00	.60	.21	.00	1.3	.00	.00	.00
16	.00	.33	.07	.00	.00	.65	.19	.00	6.7	.00	.00	.00
17	.00	.30	.11	.00	.00	.70	.17	.00	13	.00	2.4	.00
18	.00	.27	.14	.00	.00	.75	.13	.00	2.8	.00	2.1	.00
19	.00	.22	.18	.00	.00	.80	.11	.00	1.5	.00	.70	.00
20	.00	.18	.16	.00	.00	.75	.07	.00	11	.00	.38	.00
21	.00	.14	.14	.00	.00	.80	.03	.00	4.3	.00	.29	.00
22	.00	.19	.12	.00	.00	.85	.00	.00	1.8	.00	.19	.00
23	.00	.22	.10	.00	.00	.90	.00	.00	.76	.00	.03	.00
24	.00	.25	.10	.00	.00	.80	.00	.00	.35	.00	.00	.00
25	.00	.25	.10	.00	.00	.64	.00	.00	.26	.00	.00	.00
26	.00	.24	.10	.00	.00	.58	.00	.00	.15	.00	.00	.00
27	.00	.23	.10	.00	.00	.49	.00	.00	.00	.00	.00	.00
28	.02	.21	.10	.00	.00	.49	.00	.00	.00	.00	.00	.00
29	.04	.20	.10	.00	.00	.53	.00	.00	.00	.00	.00	.00
30	.06	.18	.10	.00	---	.49	.00	.00	.00	.00	.00	.00
31	.08	---	.10	.00	---	.45	---	.00	---	.00	.02	---
TOTAL	.20	5.51	4.40	.55	.00	12.82	5.82	.00	43.92	.00	6.11	.00
MEAN	.006	.18	.14	.018	.000	.41	.19	.000	1.46	.000	.20	.000
MAX	.08	.33	.19	.10	.00	.90	.45	.00	13	.00	2.4	.00
MIN	.00	.09	.07	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.4	11	8.7	1.1	.00	25	12	.00	87	.00	12	.00

CAL YR 1979 TOTAL 9756.75 MEAN 26.7 MAX 850 MIN .00 AC-FT 19350
WTR YR 1980 TOTAL 79.33 MEAN .22 MAX 13 MIN .00 AC-FT 157

06308400 PUMPKIN CREEK NEAR MILES CITY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
NOV												
29...	1015	E.20	0	7800	8.4	-7.5	.5	--	--	1000	320	130
DEC												
18...	1015	.14	0	7990	8.2	11.0	.5	10.4	79	1000	160	71
MAR												
25...	1500	.65	3	2350	8.5	10.0	3.0	11.2	91	300	4	46
JUN												
24...	1030	.33	0	2720	8.9	22.0	19.0	8.0	94	270	0	54

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
NOV												
29...	170	1400	19	25	700	3200	31	.6	.1	.00	6.0	5380
DEC												
18...	200	1800	25	19	840	3900	30	.4	--	--	8.4	6530
MAR												
25...	46	410	10	7.4	300	890	6.4	.3	--	--	4.3	1590
JUN												
24...	34	540	14	12	380	990	6.0	.7	.5	.01	6.7	1870

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
NOV											
29...	7.32	E2.91	.25	.03	.97	1.0	.04	38	.3	670	20
DEC											
18...	8.88	2.47	.07	.08	1.2	1.3	.03	--	--	760	30
MAR											
25...	2.16	2.79	.06	.07	.65	.72	.07	--	--	230	50
JUN											
24...	2.54	1.67	.13	.06	1.6	1.7	.10	22	1.7	600	50

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
NOV								
29...	1015	1	1	0	0	0	1	0

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
NOV								
29...	0	0	1	220	0	0	50	60

YELLOWSTONE RIVER BASIN

06308400 PUMPKIN CREEK NEAR MILES CITY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV								
29...	.1	.0	5	2	1	1	30	20

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
NOV					
29...	1015	.5	E.20	56	.03
DEC					
18...	1015	.5	.14	27	.01
MAR					
25...	1500	3.0	.65	76	.13
JUN					
24...	1030	19.0	.33	235	.21

06308500 TONGUE RIVER AT MILES CITY, MT

LOCATION.--Lat 46°20'44", long 105°48'10", in SE1/4 sec.23, T.7 N., R.47 E., Custer County, Hydrologic Unit 10090102, on right bank 4 mi (6 km) south of Miles City and at mile 8.1 (13.0 km).

DRAINAGE AREA.--5,379 mi^2 (13,932 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1938 to April 1942, April 1946 to current year. Published as "near Miles City" April 1938 to April 1942. Not equivalent to records published as "near Miles City" May 1929 to October 1932. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,375.76 ft (724.132 m) National Geodetic Vertical Datum of 1929 (levels U.S. by Army Corps of Engineers). April 1938 to April 1942, nonrecording gage at site 8 mi (13 km) upstream at different datum. April 1946 to Sept. 30, 1963, at datum 1.00 ft (0.305 m) higher.

REMARKS.--Water-discharge records good except those for winter periods, which are poor. Flow regulation by Tongue River Reservoir (station 06307000), and many small reservoirs in Wyoming (combined capacity about 15,000 acre-ft, 18.5 hm^2). Diversions for irrigation of about 90,000 acres (364 km^2) above station.

AVERAGE DISCHARGE.--37 years (1938-41, 1946-80), 448 ft^3/s (12.69 m^3/s), 324,600 acre-ft/yr (400 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,300 ft^3/s (377 m^3/s) June 15, 1962, gage height, 12.33 ft (3.758 m), present datum, from rating curve extended above 8,220 ft^3/s (233 m^3/s) on basis of float measurement; maximum gage height, 13.27 ft (4.045 m), present datum, Mar. 19, 1960, Feb. 15, 1971 (ice jam); no flow July 9-19, Aug. 13, 14, Sept. 28, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,170 ft^3/s (33.1 m^3/s) June 16, gage height, 3.63 ft (1.106 m); maximum gage height, 4.12 ft (1.256 m) Dec. 7 (ice jam); minimum discharge, 59 ft^3/s (1.67 m^3/s) May 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	274	300	260	220	190	389	205	265	363	128	222
2	123	268	370	250	260	280	389	200	307	324	96	228
3	121	268	370	240	260	250	404	197	415	290	90	211
4	125	271	580	230	250	230	404	189	483	277	106	203
5	125	252	500	210	250	220	385	200	500	277	119	173
6	119	246	370	190	230	240	317	200	513	261	115	194
7	115	252	300	170	220	260	331	184	543	258	117	200
8	130	255	230	150	220	290	331	186	601	237	108	208
9	128	268	260	130	220	290	327	186	615	222	92	214
10	125	261	190	140	210	300	331	173	625	205	98	217
11	128	258	130	160	200	350	327	158	687	192	110	217
12	217	297	160	180	210	400	314	156	731	200	139	222
13	214	314	170	200	220	400	294	173	767	220	146	225
14	211	338	190	220	210	500	294	176	772	192	130	225
15	228	338	120	240	200	530	303	144	890	166	130	192
16	222	294	90	240	210	510	307	139	1000	151	181	181
17	208	277	160	240	220	470	234	134	923	144	208	168
18	246	271	300	230	240	440	205	130	917	151	240	163
19	255	271	240	250	270	470	203	130	940	173	200	168
20	258	210	200	270	250	450	197	125	940	171	184	176
21	261	260	200	270	230	450	151	110	974	171	178	181
22	261	260	200	270	220	500	153	92	879	151	178	184
23	265	250	190	280	240	580	184	83	767	132	200	176
24	265	250	170	280	240	500	189	67	741	119	203	173
25	265	260	230	270	240	460	141	69	687	119	203	178
26	268	280	240	270	350	410	98	81	634	123	211	184
27	265	240	230	260	500	380	153	94	601	134	192	192
28	265	210	220	250	400	355	134	90	583	141	203	192
29	268	190	230	250	280	348	115	117	479	153	203	197
30	268	250	220	260	---	355	176	153	439	132	205	194
31	268	---	210	280	---	366	---	271	---	125	189	---
TOTAL	6340	7933	7570	7140	7270	11774	7780	4612	20218	5974	4902	5858
MEAN	205	264	244	230	251	380	259	149	674	193	158	195
MAX	268	338	580	280	500	580	404	271	1000	363	240	228
MIN	115	190	90	130	200	190	98	67	265	119	90	163
AC-FT	12580	15740	15020	14160	14420	23350	15430	9150	40100	11850	9720	11620

CAL YR 1979 TOTAL 145916 MEAN 400 MAX 2700 MIN 90 AC-FT 289400
WTR YR 1980 TOTAL 97371 MEAN 266 MAX 1000 MIN 67 AC-FT 193100

06308500 TONGUE RIVER AT MILES CITY, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1951 to current year.
WATER TEMPERATURES: April 1949 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1977 to current year.

INSTRUMENTATION.--Temperature recorder April to July 1974, July 1977 to current year.

REMARKS.--Flow affected by ice during most of winter months.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,390 micromhos Sept. 11, 1958; minimum daily, 215 micromhos Feb. 16, 1971.
WATER TEMPERATURES: Maximum recorded, 30.5°C May 22, 1980; minimum, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 5,900 mg/L May 18, 1978; minimum daily mean, 6 mg/L Feb. 18, 1980.
SEDIMENT LOADS: Maximum daily, 84,400 tons (76,600 megagrams) May 18, 1978; minimum daily, 3.4 tons (3.1 megagrams) Oct. 4, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,440 micromhos Jan. 12; minimum daily, 510 micromhos June 22.
WATER TEMPERATURES: Maximum recorded, 30.5°C May 22; minimum, 0.0°C on many days during November to March.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 3,940 mg/L June 16; minimum daily mean, 6 mg/L Feb. 18.
SEDIMENT LOADS: Maximum daily, 10,600 tons (9,620 megagrams) June 16; minimum daily, 3.4 tons (3.1 megagrams) Oct. 4.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
OCT											
04...	1030	125	0	948	8.5	14.5	9.5	1.9	11.4	108	40
NOV											
29...	1400	190	0	1120	8.3	-1.0	.5	6.8	--	--	K7
DEC											
21...	1030	200	1	1270	8.1	1.0	.0	12	12.4	93	K20
JAN											
23...	1000	181	1	1140	8.1	7.5	.0	2.8	12.6	94	K4
FEB											
28...	1000	294	3	1020	8.7	.0	.0	4.3	12.1	90	K2
MAR											
28...	1200	355	0	960	8.5	10.5	6.0	33	11.1	97	< 1
APR											
25...	0930	151	0	1060	8.6	19.0	12.5	9.2	9.2	93	26
MAY											
20...	0900	138	3	1080	8.1	20.0	17.0	16	8.1	91	K38
21...	1700	104	0	995	8.5	31.5	28.5	13	--	--	--
JUL											
02...	1330	327	1	660	8.6	31.0	27.0	50	7.3	99	74
30...	1000	131	0	675	8.6	21.0	21.0	18	7.9	96	76
AUG											
27...	1700	190	3	680	8.3	19.5	20.0	50	7.7	92	K190
SEP											
30...	1530	197	3	900	8.6	22.5	17.0	40	8.6	97	K73

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)
OCT										
04...	K20	360	120	63	50	71	1.6	5.9	240	270
NOV										
29...	60	480	180	83	65	83	1.7	6.6	300	320
DEC										
21...	27	500	170	87	69	98	1.9	6.2	330	390
JAN										
23...	25	480	180	87	64	79	1.6	5.7	300	310
FEB										
28...	250	390	140	68	53	75	1.7	5.4	250	310
MAR										
28...	20	400	160	71	53	78	1.7	5.7	240	300
APR										
25...	25	410	170	70	56	81	1.8	8.2	240	300
MAY										
20...	150	380	150	67	51	69	1.5	7.1	230	290
21...	--	380	150	67	52	77	1.7	7.5	230	280
JUL										
02...	60	230	64	46	29	39	1.1	3.9	170	150
30...	50	270	66	52	33	50	1.3	4.7	200	160
AUG										
27...	400	250	74	49	32	49	1.3	4.6	190	180
SEP										
30...	28	350	130	61	49	63	1.5	6.3	240	280

DATE	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)
OCT										
04...	5.5	.3	6.5	629	617	.86	212	.02	.00	.02
NOV										
29...	5.7	.4	5.8	771	752	1.05	396	.02	--	.01
DEC										
21...	6.2	.3	6.5	866	862	1.18	468	.03	.02	.04
JAN										
23...	5.4	.3	7.4	785	742	1.07	384	.23	--	.02
FEB										
28...	5.7	.3	6.4	679	675	.92	539	.23	.21	.01
MAR										
28...	4.9	.3	5.1	666	663	.91	638	.09	.09	.04
APR										
25...	5.8	.4	1.7	715	668	.97	292	.02	.13	.03
MAY										
20...	5.9	.3	3.7	649	633	.88	242	.05	.05	.11
21...	6.1	.3	4.3	656	633	.89	184	.02	.02	.11
JUL										
02...	2.8	.3	7.5	379	381	.52	335	.00	.00	.01
30...	2.7	.5	5.8	424	429	.58	150	.02	.02	.00
AUG										
27...	3.7	.3	7.3	440	434	.60	226	.01	.00	.01
SEP										
30...	4.5	.4	4.8	657	601	.89	349	.00	.00	.00

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITROGEN, AMMONIA DISSOLVED (MG/L AS N) (00608)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N) (00607)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)
OCT 04...	.01	.56	.45	.58	.46	.00	.00	--	4.8	.2
NOV 29...	.00	.52	.39	.53	.39	.08	.00	6.2	--	--
DEC 21...	.03	.50	.40	.54	.43	.03	.01	14	--	--
JAN 23...	.00	.35	.40	.37	.40	.01	.00	11	--	--
FEB 28...	.01	.45	.44	.46	.45	.01	.01	--	9.1	--
MAR 28...	.04	.45	.49	.49	.53	.05	.01	13	--	--
APR 25...	.37	.86	.52	.89	.89	.04	.01	10	--	--
MAY 20...	.04	.99	.49	1.1	.53	.05	.00	--	12	1.3
21...	.06	.58	.57	.69	.63	.04	.00	12	--	--
JUL 02...	.00	3.1	.10	3.1	.10	.04	.00	9.1	--	--
30...	.00	.57	.36	.57	.36	.04	.03	7.7	--	--
AUG 27...	.03	1.3	.37	1.3	.40	.23	.01	--	4.4	1.7
SEP 30...	.00	.60	.39	.60	.39	.06	.01	7.5	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
OCT 04...	1030	1	1	100	80	0	< 1	10	10	0
DEC 21...	1030	--	--	--	--	--	--	--	--	--
FEB 28...	1000	2	1	200	60	0	< 1	0	0	0
MAR 28...	1200	--	--	--	--	--	--	--	--	--
MAY 20...	0900	2	2	100	70	0	0	100	0	4
JUL 02...	1330	--	--	--	--	--	--	--	--	--
AUG 27...	1700	3	2	100	60	1	< 1	10	0	4
SEP 30...	1530	--	--	--	--	--	--	--	--	--

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)
OCT										
04...	< 3	1	1	180	< 10	4	0	20	4	.0
DEC										
21...	--	--	--	--	--	--	--	--	--	--
FEB										
28...	< 3	4	0	360	< 10	7	0	30	10	.0
MAR										
28...	--	--	--	--	--	--	--	--	--	--
MAY										
20...	0	5	4	1400	10	3	0	110	5	.0
JUL										
02...	--	--	--	--	--	--	--	--	--	--
AUG										
27...	< 3	27	5	7700	20	17	0	250	4	.0
SEP										
30...	--	--	--	--	--	--	--	--	--	--

DATE	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT									
04...	.0	3	1	0	1	0	0	30	< 3
DEC									
21...	--	--	--	--	--	0	--	--	--
FEB									
28...	.0	3	0	1	1	0	0	30	9
MAR									
28...	--	--	--	--	--	0	--	--	--
MAY									
20...	.0	82	3	1	0	0	0	20	6
JUL									
02...	--	--	--	--	--	0	--	--	--
AUG									
27...	.0	13	5	1	0	2	0	60	< 3
SEP									
30...	--	--	--	--	--	0	--	--	--

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	910	982	1180	1060	1260	1080	1020	989	784	587	680	770
2	911	1000	1200	1140	1210	1070	1020	971	751	601	701	730
3	892	1000	1210	1130	1300	1070	992	959	730	609	719	749
4	859	998	1160	1140	1180	1020	1010	961	730	606	719	769
5	921	1000	1100	1160	1180	1040	999	951	656	610	721	765
6	914	980	1060	1160	1160	1040	1020	951	659	610	717	780
7	933	1030	991	1120	1120	1040	1030	950	621	610	712	783
8	922	1030	990	1220	1100	1060	1050	970	596	608	713	780
9	950	1050	947	1370	1070	1080	1060	961	560	604	720	770
10	961	1040	955	1340	1060	1090	1060	970	552	602	750	780
11	957	1040	968	1370	1060	1110	1040	970	546	609	740	776
12	930	1030	1060	1440	1080	1090	1060	972	555	609	729	765
13	953	1020	1110	1420	1100	1060	1070	969	548	610	709	798
14	981	1010	1240	1400	1120	1140	1070	959	529	614	720	809
15	965	990	1230	1380	1130	990	1080	969	549	621	749	830
16	971	981	1270	1340	1140	940	1060	952	582	627	738	840
17	984	991	1300	1220	1160	921	1070	966	526	639	723	839
18	979	1020	1340	1180	1150	920	1080	970	521	639	702	849
19	982	1020	1340	1150	1160	941	1060	961	523	642	710	850
20	975	1040	1200	1160	1140	932	1040	943	530	649	709	859
21	962	1040	1230	1140	1120	927	1040	960	520	645	740	860
22	947	1070	1160	1120	1120	938	1080	991	510	635	750	852
23	951	1070	1160	1140	1120	951	1060	989	525	637	738	849
24	940	1070	1120	1130	1100	952	1070	1040	530	634	732	859
25	953	1040	1200	1120	1080	940	1040	1060	532	640	730	850
26	790	1040	1150	1150	1050	949	1060	990	540	645	719	857
27	941	1060	1140	1220	1020	950	1070	960	541	646	719	870
28	960	1070	1150	1230	1010	952	1060	990	527	700	730	879
29	978	1080	1220	1260	1080	1020	1050	942	528	649	730	889
30	979	1160	1180	1300	---	1020	1020	891	579	660	713	894
31	989	---	1180	1310	---	1040	---	836	---	682	720	---
MEAN	943	1030	1150	1230	1120	1010	1050	965	579	628	723	818

WTR YR 1980 MEAN 937 MAX 1440 MIN 510

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	15.5	11.0	13.5	3.5	1.0	2.5	.0	.0	.0	.0	.0	.0
2	13.5	10.5	12.5	4.0	.5	2.5	.0	.0	.0	.0	.0	.0
3	13.5	8.5	10.5	3.0	1.0	2.5	.0	.0	.0	.0	.0	.0
4	14.5	8.0	11.5	4.0	2.5	3.0	.0	.0	.0	.0	.0	.0
5	15.0	11.0	13.0	4.0	1.5	2.5	.0	.0	.0	.0	.0	.0
6	15.5	9.5	13.0	3.5	.5	2.0	.0	.0	.0	.0	.0	.0
7	15.5	11.0	13.5	2.5	.5	1.0	.0	.0	.0	.0	.0	.0
8	14.0	9.0	11.5	2.0	.0	.5	.5	.0	.0	.0	.0	.0
9	11.5	7.5	9.5	1.5	.0	.5	.5	.0	.0	.0	.0	.0
10	15.0	8.5	11.5	2.0	1.5	1.5	.0	.0	.0	.0	.0	.0
11	13.0	11.0	12.5	3.0	.5	1.5	.0	.0	.0	.0	.0	.0
12	13.5	11.5	12.5	3.0	.0	1.5	.0	.0	.0	1.0	.0	.0
13	13.5	8.5	11.0	2.5	.0	1.0	.0	.0	.0	1.0	.0	.0
14	14.5	9.5	12.0	3.5	.5	1.5	.0	.0	.0	.0	.0	.0
15	14.0	11.0	13.0	3.0	.0	1.5	.0	.0	.0	.0	.0	.0
16	15.0	11.5	13.0	2.0	.5	1.5	.0	.0	.0	.0	.0	.0
17	14.0	10.0	12.5	3.5	1.0	2.5	.0	.0	.0	.0	.0	.0
18	14.0	11.0	12.5	2.5	.5	1.0	.0	.0	.0	.0	.0	.0
19	12.5	10.5	11.5	1.5	.0	.5	.0	.0	.0	.0	.0	.0
20	10.5	7.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	9.5	7.5	8.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
22	---	5.5	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	10.0	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	11.5	7.5	9.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
25	12.5	9.0	10.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
26	11.0	8.5	10.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	10.5	7.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	10.0	7.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	9.5	6.0	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	7.5	3.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	5.0	1.5	3.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	15.5	1.5	11.0	4.0	.0	1.0	.5	.0	.0	1.0	.0	.0

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN FEBRUARY	MEAN	MAX	MIN MARCH	MEAN	MAX	MIN APRIL	MEAN	MAX	MIN MAY	MEAN
1	.0	.0	.0	.0	.0	.0	6.5	5.5	6.0	---	---	---
2	.0	.0	.0	.0	.0	.0	7.5	5.0	6.0	---	---	---
3	.0	.0	.0	.0	.0	.0	9.0	5.0	7.0	---	---	---
4	.0	.0	.0	.0	.0	.0	11.0	5.0	8.0	---	---	---
5	.0	.0	.0	.0	.0	.0	11.0	6.5	9.0	---	---	---
6	.0	.0	.0	.0	.0	.0	9.5	7.5	8.5	---	---	---
7	.0	.0	.0	.0	.0	.0	7.5	5.5	6.0	---	---	---
8	.0	.0	.0	.0	.0	.0	10.5	4.0	7.0	---	---	---
9	.0	.0	.0	.0	.0	.0	12.5	5.0	9.0	---	---	---
10	.0	.0	.0	.0	.0	.0	10.0	8.5	9.5	---	---	---
11	.0	.0	.0	.0	.0	.0	11.5	7.0	9.5	---	---	---
12	.0	.0	.0	.0	.0	.0	12.0	7.5	10.0	---	---	---
13	.0	.0	.0	.0	.0	.0	14.5	7.0	11.0	---	---	---
14	.0	.0	.0	.0	.0	.0	16.5	9.0	13.0	---	---	---
15	.0	.0	.0	.0	.0	.0	15.5	11.5	13.5	---	---	---
16	.0	.0	.0	.0	.0	.0	15.0	10.0	12.5	---	---	---
17	.0	.0	.0	.0	.0	.0	17.5	10.0	13.0	---	---	---
18	.0	.0	.0	.0	.0	.0	17.5	11.5	14.5	---	---	---
19	.0	.0	.0	.0	.0	.0	19.5	12.0	16.0	---	---	---
20	.0	.0	.0	.0	.0	.0	21.5	13.5	17.5	---	---	---
21	.0	.0	.0	.0	.0	.0	22.5	15.0	18.5	---	---	---
22	.0	.0	.0	.0	.0	.0	18.0	14.0	16.5	30.5	19.5	24.5
23	.0	.0	.0	.0	.0	.0	18.0	12.0	15.0	28.5	19.5	23.5
24	.0	.0	.0	.0	.0	.0	18.0	11.5	14.5	27.0	18.0	22.0
25	.0	.0	.0	.5	.0	.0	18.0	11.5	15.0	19.0	13.0	17.0
26	.0	.0	.0	.5	.0	.0	18.5	11.0	15.0	22.0	11.5	16.5
27	.0	.0	.0	4.5	.0	1.5	19.0	12.0	15.5	25.0	14.5	19.5
28	.0	.0	.0	8.0	3.0	5.5	21.5	12.5	---	25.0	15.0	19.5
29	.0	.0	.0	10.0	4.0	7.0	---	---	---	21.0	17.0	18.0
30	---	---	---	10.0	5.5	8.0	---	---	---	18.0	15.0	16.0
31	---	---	---	7.5	5.5	6.5	---	---	---	18.0	14.0	16.0
MONTH	.0	.0	.0	10.0	.0	1.0	22.5	4.0	11.5	30.5	11.5	19.5

DAY	MAX	MIN JUNE	MEAN	MAX	MIN JULY	MEAN	MAX	MIN AUGUST	MEAN	MAX	MIN SEPTEMBER	MEAN
1	21.5	14.5	18.0	26.5	20.0	23.0	27.5	21.5	24.0	20.0	14.5	17.5
2	22.5	16.5	19.5	28.0	22.0	25.0	27.5	20.5	24.0	19.5	16.0	18.0
3	23.5	18.0	21.0	---	---	---	23.0	15.0	19.5	19.0	16.0	17.5
4	24.0	18.5	21.5	---	---	---	17.0	13.5	15.0	20.0	13.5	16.5
5	24.0	19.5	21.5	---	---	---	23.5	13.0	18.0	22.0	14.5	18.5
6	21.0	18.C	19.0	---	---	---	25.0	17.0	21.0	23.5	16.5	20.0
7	19.0	16.5	17.5	---	---	---	24.0	19.0	21.0	22.5	18.5	20.5
8	21.5	15.0	18.0	---	---	---	24.0	17.0	20.5	20.0	14.5	17.0
9	23.5	17.0	20.5	---	---	---	25.5	17.0	21.0	19.0	12.0	15.5
10	24.0	19.5	21.5	---	---	---	24.5	18.5	21.0	20.0	14.5	17.0
11	25.5	20.0	22.5	---	---	---	25.0	17.5	21.5	21.0	17.0	18.5
12	25.5	21.0	23.0	---	---	---	23.5	19.5	21.0	19.0	16.5	17.5
13	25.5	21.0	23.0	---	---	---	23.5	18.5	21.0	19.0	15.5	17.0
14	24.0	20.5	22.0	---	---	---	22.5	18.5	20.0	21.0	15.5	18.0
15	21.0	18.5	20.0	---	---	---	19.0	17.5	18.0	19.0	13.0	16.0
16	22.0	16.5	19.0	---	---	---	18.5	16.5	17.5	16.5	11.0	14.0
17	24.0	19.5	21.5	---	---	---	22.5	15.5	19.0	17.5	14.5	15.5
18	23.5	20.0	22.0	---	---	---	25.5	18.5	21.5	18.5	13.5	16.0
19	21.5	20.5	21.0	---	---	---	23.0	18.0	20.0	19.5	15.0	17.0
20	24.5	19.5	22.0	---	---	---	19.0	17.5	18.0	19.0	14.0	16.5
21	25.5	21.5	23.5	---	---	---	22.5	15.5	19.0	17.0	14.0	15.5
22	27.0	22.5	24.5	---	---	---	21.5	17.5	19.5	16.0	11.0	14.0
23	26.5	23.0	24.0	---	---	---	23.5	16.5	19.5	15.5	12.5	14.0
24	25.5	21.0	23.0	---	---	---	25.0	18.0	21.5	14.0	12.0	13.0
25	26.5	21.5	23.5	---	---	---	20.5	16.0	18.5	15.5	9.5	12.5
26	26.5	21.0	23.5	---	---	---	17.5	16.0	16.5	16.5	10.5	13.5
27	23.0	19.5	21.0	---	---	---	20.0	14.0	17.5	18.0	11.5	14.5
28	21.5	17.5	19.5	---	---	---	22.0	16.5	19.0	18.5	13.0	16.0
29	25.5	17.5	21.5	---	---	---	21.0	17.0	19.0	18.0	13.5	16.0
30	24.0	21.5	22.5	28.0	---	---	20.0	15.0	17.5	17.5	13.5	15.5
31	---	---	---	28.5	20.5	24.5	18.0	15.0	16.5	---	---	---
MONTH	27.0	14.5	21.5	28.5	20.0	24.0	27.5	13.0	19.5	23.5	9.5	16.5
YEAR	30.5	.0	8.5									

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	18	6.0	14	10	23	19	34	24	37	22	28	14
2	23	7.6	9	6.5	25	25	39	26	29	20	25	19
3	18	5.9	14	10	18	18	33	21	15	11	17	11
4	10	3.4	23	17	80	125	35	22	19	13	19	12
5	11	3.7	10	6.8	109	147	27	15	22	15	18	11
6	16	5.1	9	6.0	70	70	18	9.2	20	12	16	10
7	21	6.5	13	8.8	109	88	30	14	17	10	21	15
8	19	6.7	14	9.6	69	43	27	11	19	11	18	14
9	22	7.6	12	8.7	47	33	29	10	17	10	17	13
10	18	6.1	16	11	53	27	40	15	14	7.9	21	17
11	15	5.2	24	17	39	14	37	16	16	8.6	12	11
12	15	8.8	28	22	40	17	28	14	17	9.6	64	69
13	13	7.5	30	25	40	18	19	10	13	7.7	86	93
14	9	5.1	31	28	29	15	35	21	10	5.7	51	69
15	10	6.2	25	23	34	11	31	20	12	6.5	28	40
16	15	9.0	11	8.7	33	8.0	21	14	11	6.2	27	37
17	10	5.6	11	8.2	46	20	23	15	7	4.2	16	20
18	14	9.3	9	6.6	64	52	27	17	6	3.9	18	21
19	24	17	11	8.0	48	31	39	26	23	17	20	25
20	19	13	12	6.8	84	45	33	24	21	14	17	21
21	14	9.9	53	37	155	84	39	28	15	9.3	22	27
22	15	11	73	51	88	48	41	30	18	11	24	32
23	21	15	70	47	60	31	27	20	16	10	27	42
24	42	30	73	49	63	29	26	20	15	9.7	48	65
25	38	27	83	58	63	39	22	16	16	10	71	88
26	29	21	73	55	62	40	23	17	20	19	118	131
27	14	10	73	47	60	37	30	21	21	28	78	80
28	9	6.4	91	52	53	31	25	17	25	27	80	77
29	9	6.5	66	34	51	32	24	16	26	20	80	75
30	11	8.0	39	26	44	26	34	24	---	---	70	67
31	20	14	---	---	36	20	27	20	---	---	78	77
TOTAL	---	304.1	---	703.7	---	1243.0	---	573.2	---	359.3	---	1303
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	112	118	97	54	175	125	116	114	63	22	190	114
2	109	114	92	50	169	140	116	101	47	12	212	131
3	108	118	79	42	280	314	117	92	43	10	146	83
4	82	89	89	45	470	613	136	102	32	9.2	123	67
5	84	87	84	45	476	643	161	120	37	12	114	53
6	70	60	76	41	439	608	160	113	51	16	142	74
7	73	65	64	32	412	604	130	91	60	19	140	76
8	85	76	63	32	409	664	102	65	62	18	144	81
9	81	72	65	33	433	719	111	67	41	10	134	77
10	90	80	70	33	476	803	110	61	43	11	132	77
11	94	83	61	26	454	842	113	59	53	16	128	75
12	114	97	59	25	532	1050	112	60	47	18	120	72
13	86	68	54	25	567	1170	116	69	46	18	112	68
14	62	49	60	29	468	975	112	58	52	18	114	69
15	80	65	71	28	1720	4130	106	48	95	33	107	55
16	79	65	77	29	3940	10600	109	44	944	461	83	41
17	71	45	54	20	1020	2540	83	32	449	252	72	33
18	76	42	56	20	881	2180	79	32	235	152	78	34
19	62	34	67	24	1110	2820	81	38	177	96	84	38
20	61	32	57	19	920	2330	79	36	515	256	77	37
21	68	28	74	22	653	1720	72	33	288	138	77	38
22	52	21	82	20	480	1140	71	29	183	88	66	33
23	61	30	75	17	355	735	80	29	163	88	76	36
24	66	34	59	11	332	664	68	22	170	93	76	35
25	40	15	61	11	266	493	68	22	165	90	60	29
26	52	14	70	15	251	430	67	22	143	81	60	30
27	94	39	81	21	245	398	63	23	156	81	71	37
28	60	22	73	18	200	315	60	23	337	185	81	42
29	49	15	90	28	191	247	59	24	357	196	79	42
30	91	43	101	42	154	183	67	24	187	104	86	45
31	---	---	208	152	---	---	69	23	128	65	---	---
TOTAL	---	1720	---	1009	---	40195	---	1676	---	2668.2	---	1722

TOTAL LOAD FOR YEAR: 53476.5 TONS.

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
MAR 28...	1200	6.0	355	67	64	87
APR 25...	0930	12.5	151	39	16	86
MAY 20...	0900	17.0	138	58	22	98
JUL 02...	1330	27.0	327	92	81	96
AUG 27...	1700	20.0	190	318	163	99
SEP 30...	1530	17.0	197	84	45	98

PERIPHYTON ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS) (70950)
APR 25...	0930	28	2.68	2.44	.230	.000	1043
JUL 30...	1000	28	88.0	75.2	5.36	.340	2388
AUG 27...	1700	28	47.9	45.0	3.54	.270	819

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE	NOV 28,79	MAR 28,80	MAY 20,80	JUL 2,80
TIME	1400	1415	0900	1330
TOTAL CELLS/ML	1400	1000	4000	16000
DIVERSITY: DIVISION	0.7	0.3	1.7	0.7
.CLASS	0.7	0.3	1.7	0.7
..ORDER	1.6	1.0	2.0	1.2
...FAMILY	2.3	2.6	2.4	1.2
....GENUS	2.6	2.8	2.6	1.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	400	3
...OOCYSTACEAE								
....ANKISTRODESMUS	35	2	26	2	380	9	270	2
....CHLORELLA	--	-	--	-	--	-	130	1
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-
....OOCYSTIS	12	1	--	-	--	-	400	3
....TREUBARIA	--	-	--	-	50	1	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	--	-	800#	20	--	-
....TETRASTRUM	--	-	--	-	200	5	--	-
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	--	-	--	-	940	6
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	13	1	75	2	270	2
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	710#	50	170#	16	1300#	33	12000#	77
....MELOSIRA	23	2	--	-	--	-	270	2
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	12	1	13	1	--	-	--	-
....COCCONEIS	12	1	--	-	--	-	--	-
....RHOICOSPHENIA	12	1	--	-	--	-	--	-
...CYMBELLACEAE								
....CYMBELLA	--	-	13	1	--	-	--	-
...DIATOMACEAE								
....DIATOMA	12	1	150	15	--	-	--	-
...FRAGILARIACEAE								
....FRAGILARIA	200	14	330#	32	--	-	--	-
....SYNEDRA	35	2	51	5	--	-	--	-
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	26	2	--	-	--	-
...NAVICULACEAE								
....NAVICULA	120	8	100	10	50	1	--	-
...NITZSCHIACEAE								
....NITZSCHIA	130	9	120	11	75	2	810	5
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	180	4	130	1
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	--	-	25	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	23	2	--	-	830#	21	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	23	2	--	-	--	-	--	-
...PETALOMONADACEAE								
....CALYCOMONAS	12	1	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..GYMNODINIALES								
...GYMNODINIACEAE								
....GYMNODINIUM	47	3	--	-	--	-	--	-
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	12	1	13	1	--	-	--	-

06308500 TONGUE RIVER AT MILES CITY, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO SEPTEMBER 1980

DATE TIME	JUL 30,80 1000	AUG 27,80 1700	SEP 30,80 1530
TOTAL CELLS/ML	2400	10000	6600
DIVERSITY: DIVISION	1.7	1.5	1.4
.CLASS	1.7	1.5	1.4
..ORDER	2.1	2.0	2.0
...FAMILY	3.1	2.5	2.3
....GENUS	3.3	2.8	2.5

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	120	5	240	2	61	1
...COELASTRACEAE						
....COELASTRUM	210	9	--	-	240	4
...OOCYSTACEAE						
....ANKISTRODESMUS	39	2	160	2	20	0
....DICTYOSPHAERIUM	--	-	330	3	--	-
....OOCYSTIS	540#	22	810	8	180	3
...SCENEDESMACEAE						
....SCENEDESMUS	310	13	810	8	320	5
....TETRASTRUM	--	-	--	-	160	2
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	39	2	160	2	40	1
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	180	7	4500#	44	1200#	17
....MELOSIRA	210	9	160	2	40	1
....STEPHANODISCUS	--	-	81	1	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	13	1	--	-	20	0
....COCCONEIS	--	-	240	2	61	1
....GOMPHONEMA	--	-	--	-	20	0
...NAVICULACEAE						
....NAVICULA	39	2	81	1	20	0
...NITZSCHIACEAE						
....NITZSCHIA	77	3	1100	11	160	2
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	77	3	--	-	120	2
...CRYPTOMONADACEAE						
....CRYPTOMONAS	26	1	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	90	4	490	5	3400#	52
..HORMOGONALES						
...NOSTOCACEAE						
....ANABAENA	450#	19	--	-	--	-
...OSCILLATORIACEAE						
....OSCILLATORIA	--	-	--	-	570	9
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	13	1	--	-	--	-
...PERIDINIACEAE						
....PERIDINIUM	--	-	980	10	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06309000 YELLOWSTONE RIVER AT MILES CITY, MT

LOCATION.--Lat 46°25'18", long 105°51'38", in NE¼SW¼NW¼ sec.28, T.8 N., R.47 E., Custer County, Hydrologic Unit 10100001, at upstream side of bridge on State Highway 22 at Miles City, 0.8 mi (1.3 km) downstream from Tongue River, and at mile 184.2 (296.4 km), revised.

DRAINAGE AREA.--48,253 mi^2 (124,975 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1922 to September 1923, August 1928 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,333.3 ft (711.19 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to May 6, 1929, nonrecording gages at pumping plant 1.2 mi (1.9 km) downstream at different datums. May 6, 1929, to Sept. 30, 1931, nonrecording gage, and Oct. 1, 1931, to Nov. 10, 1937, water-stage recorder 300 ft (91 m) upstream from present site at same datum. Nov. 11, 1937, to Sept. 30, 1946, water-stage recorder at pumping plant 1.2 mi (1.9 km) downstream at different datum. Oct. 1, 1946, to Mar. 15, 1979, water-stage recorder at site 300 ft (91 m) upstream at present datum. Mar. 16, 1979, to Sept. 21, 1979, nonrecording gage at present site and datum. Sept. 22, 1979, recording gage established at same site and datum.

REMARKS.--Records good except those for winter period, which are poor. Some regulation by reservoirs on tributary streams. Diversions for irrigation of about 1,100,000 acres (4,450 km^2) above station (does not include flood irrigation). Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--53 years (1922-23, 1928-80), 11,582 ft^3/s (328.0 m^3/s), 8,391,000 acre-ft/yr (10.3 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 102,000 ft^3/s (2,889 m^3/s) May 22, 1978, gage height, 16.50 ft (5.029 m); maximum gage height, 21.7 ft (6.61 m) Mar. 20, 1944 (ice jam, from floodmark, at site 300 ft (91 m) upstream at present datum); minimum discharge, 996 ft^3/s (28.2 m^3/s) Dec. 14, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33,900 ft^3/s (960 m^3/s) June 24, gage height, 8.83 ft (2.691 m); minimum daily, 2,200 ft^3/s (62.3 m^3/s) Jan. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5390	5870	5500	6070	4900	10000	7730	12100	20200	21300	7670	6940
2	5470	5670	5780	6780	5300	10000	8190	12200	19800	20200	7440	7000
3	5560	5470	5950	7250	6200	8500	8130	13200	19600	20600	7350	6910
4	5500	5390	6880	7700	6400	7300	8160	14100	19500	20200	7310	6850
5	5610	5200	7890	7670	6600	6600	8130	14200	19100	20400	7310	6780
6	5640	5280	7990	5600	6600	6200	8030	14400	18500	21100	7220	6780
7	5610	5450	7730	3000	6500	6200	7990	14600	18300	19800	6880	6720
8	5580	5450	7310	2500	6200	7200	8090	14700	18300	18000	6510	6540
9	5580	5450	6970	2300	6000	8200	8400	16100	18300	17500	6180	6390
10	5700	5390	6940	2300	6000	9200	8500	16700	17800	16900	6330	6540
11	5890	5360	6910	2200	6000	10000	9160	16500	17900	17000	6300	6810
12	6010	6210	6970	2800	6200	10500	9160	19400	20000	16700	6330	7190
13	6100	6940	6750	4000	6200	11500	9190	18800	24500	16100	6160	7410
14	6100	7030	6720	4800	6000	12000	9260	16200	28000	15400	5950	8230
15	6240	6970	7220	5600	5600	12000	9230	13700	30300	14700	6070	10000
16	6330	6810	5280	7400	5400	11700	9300	12500	30100	14100	6660	10700
17	6210	6750	3200	7400	5800	11600	9730	11700	30100	13600	6970	10800
18	6570	6720	4600	7400	6200	10400	10100	11200	29900	13500	7570	10400
19	6780	6720	5580	7600	6700	9260	10300	11500	28400	13100	7350	10400
20	6810	6850	6970	5600	7400	8460	10500	12700	28900	12700	7440	10200
21	6660	6910	7930	6200	8400	7830	10700	13500	30600	12300	7350	10600
22	6660	6910	8400	6600	9400	7960	11200	14800	32700	11900	7440	11400
23	6910	6540	8260	7000	11000	7960	12200	20600	33300	11400	7410	11500
24	7030	6210	7860	7400	13000	8030	12100	27800	33100	11000	7440	11300
25	6970	6390	7860	7100	14000	7830	11500	31800	30900	10700	7250	11200
26	6910	6630	7960	6600	12000	7830	11400	32900	28200	10500	7090	11200
27	6840	6570	7700	5900	11000	7800	12000	32500	25600	10200	6570	11200
28	6510	6360	7500	5200	9000	7630	12600	28500	25200	10100	6630	11000
29	5340	6100	6910	4700	9500	7470	12600	23900	25500	9700	6690	10900
30	5390	6040	6630	4600	---	7540	12300	21400	23600	8980	6810	10700
31	5700	---	6330	4600	---	7600	---	20600	---	8060	6910	---
TOTAL	189600	185640	212480	171870	219500	272300	295880	554800	746200	457740	214590	270590
MEAN	6116	6188	6854	5544	7569	8784	9863	17900	24870	14770	6922	9020
MAX	7030	7030	8400	7700	14000	12000	12600	32900	33300	21300	7670	11500
MIN	5340	5200	3200	2200	4900	6200	7730	11200	17800	8060	5950	6390
AC-FT	376100	368200	421500	340900	435400	540100	586900	1100000	1480000	907900	425600	536700

CAL YR 1979 TOTAL 4108370 MEAN 11260 MAX 34800 MIN 3200 AC-FT 8149000
WTR YR 1980 TOTAL 3791190 MEAN 10360 MAX 33300 MIN 2200 AC-FT 7520000

06309000 YELLOWSTONE RIVER AT MILES CITY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948-52, 1965, 1974-75, 1977 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: May 1974 to September 1975, July 1977 to current year.

INSTRUMENTATION.--Temperature recorder May 1974 to September 1975, July 1977 to current year.

REMARKS.--Temperature probe located about 25 ft (8 m) out from left bank. Flow from Tongue River enters on right bank 0.9 mi (1.4 km) upstream from gage. Temperature record is equivalent to Yellowstone River near Miles City (station 06296120) located above confluence of the Tongue River.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum recorded, 27.5°C July 19, Aug. 6, 1979; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 26.5°C Aug. 2; minimum, 0.0°C on many days during December to March.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN OCTOBER	MEAN	MAX	MIN NOVEMBER	MEAN	MAX	MIN DECEMBER	MEAN	MAX	MIN JANUARY	MEAN
1	17.0	14.0	15.5	5.5	4.5	5.0	---	---	---	---	---	---
2	15.5	12.5	14.0	6.0	3.5	4.5	---	---	---	---	---	---
3	14.5	11.5	13.0	5.0	3.5	4.0	---	---	---	---	---	---
4	15.0	11.0	13.0	5.0	3.5	4.0	---	---	---	---	---	---
5	15.5	12.5	13.5	4.5	3.0	3.5	---	---	---	.0	.0	.0
6	15.5	12.0	13.5	4.5	2.5	3.5	---	---	---	.0	.0	.0
7	16.0	13.0	14.5	4.0	2.5	3.0	---	---	---	.0	.0	.0
8	13.5	11.5	13.0	3.5	2.5	2.5	---	---	---	.0	.0	.0
9	13.0	10.5	12.0	2.5	1.5	2.0	---	---	---	.0	.0	.0
10	14.5	11.0	12.5	2.5	2.0	2.0	---	---	---	.0	.0	.0
11	13.0	12.0	12.5	3.5	2.5	3.0	.5	.0	.0	.0	.0	.0
12	14.5	12.0	13.0	4.0	2.0	3.0	.0	.0	.0	.0	.0	.0
13	14.0	11.0	12.5	4.0	2.0	3.0	.0	.0	.0	.0	.0	.0
14	14.5	11.5	13.0	3.5	2.0	3.0	.0	.0	.0	---	---	---
15	14.0	12.5	13.5	4.5	2.5	3.5	.0	.0	.0	---	---	---
16	15.0	12.5	13.5	4.5	2.5	3.5	.0	.0	.0	---	---	---
17	14.5	12.5	13.5	3.5	3.0	3.5	---	---	---	---	---	---
18	14.0	12.0	13.0	4.5	3.0	3.5	---	---	---	---	---	---
19	13.0	11.0	12.0	---	---	---	---	---	---	.0	.0	.0
20	12.0	10.0	11.0	---	---	---	---	---	---	.0	.0	.0
21	10.5	9.5	10.0	---	---	---	---	---	---	.0	.0	.0
22	10.5	8.0	9.0	---	---	---	---	---	---	.0	.0	.0
23	10.5	8.5	9.5	---	---	---	---	---	---	.0	.0	.0
24	11.5	9.0	10.0	---	---	---	---	---	---	.0	.0	.0
25	11.5	9.5	10.5	---	---	---	---	---	---	.0	.0	.0
26	11.0	10.0	10.5	---	---	---	---	---	---	.0	.0	.0
27	11.5	9.0	10.0	---	---	---	---	---	---	.0	.0	.0
28	11.5	9.5	10.5	---	---	---	---	---	---	.0	.0	.0
29	11.0	9.0	10.0	---	---	---	---	---	---	.0	.0	.0
30	10.0	7.5	8.5	---	---	---	---	---	---	.0	.0	.0
31	7.5	5.5	6.5	---	---	---	---	---	---	.0	.0	.0
MONTH	17.0	5.5	12.0	6.0	1.5	3.5	.5	.0	.0	.0	.0	.0

06309000 YELLOWSTONE RIVER AT MILES CITY, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	.0	.0	.0	7.0	6.0	6.5	19.0	16.5	17.5
2	.0	.0	.0	.0	.0	.0	6.5	5.5	6.0	19.0	16.0	17.5
3	.0	.0	.0	.0	.0	.0	7.5	5.0	6.0	19.0	16.0	17.0
4	.0	.0	.0	.0	.0	.0	9.0	5.0	7.0	18.5	16.5	17.5
5	.0	.0	.0	.0	.0	.0	9.0	6.0	7.5	18.5	16.0	17.0
6	.0	.0	.0	.0	.0	.0	9.0	7.5	8.0	17.0	15.5	16.0
7	.0	.0	.0	.0	.0	.0	8.5	6.5	7.5	16.5	14.5	15.5
8	.0	.0	.0	.0	.0	.0	9.5	6.0	8.0	15.5	13.5	14.5
9	.0	.0	.0	.0	.0	.0	11.0	6.5	9.0	15.5	14.0	14.5
10	.0	.0	.0	.0	.0	.0	10.0	8.5	9.0	15.5	14.0	14.5
11	.0	.0	.0	.0	.0	.0	10.0	7.5	9.0	15.0	13.0	14.0
12	.0	.0	.0	.0	.0	.0	10.5	8.0	9.0	13.5	12.5	13.0
13	.0	.0	.0	.0	.0	.0	12.0	7.5	9.5	13.0	11.5	12.5
14	.0	.0	.0	.0	.0	.0	13.5	9.0	11.0	14.0	11.5	12.5
15	.0	.0	.0	.0	.0	.0	13.0	10.5	11.5	15.0	12.0	13.5
16	.0	.0	.0	.0	.0	.0	13.5	10.0	11.5	15.0	13.0	14.0
17	.0	.0	.0	.0	.0	.0	14.5	10.5	12.5	17.0	13.5	15.0
18	.0	.0	.0	.5	.0	.0	15.0	11.0	13.0	19.0	15.0	17.0
19	.0	.0	.0	.5	.0	.0	15.5	12.0	13.5	19.0	16.5	18.0
20	.0	.0	.0	4.0	.0	2.0	17.0	12.5	14.5	19.5	17.5	18.5
21	.0	.0	.0	5.5	3.5	4.5	17.5	13.5	15.5	20.5	17.5	19.0
22	.0	.0	.0	7.0	4.5	5.5	16.5	14.0	15.0	22.0	19.0	20.5
23	.0	.0	.0	7.0	4.5	6.0	15.5	13.0	14.0	22.0	20.5	21.0
24	.0	.0	.0	8.0	6.0	7.0	15.5	12.5	14.0	21.0	18.5	20.0
25	.0	.0	.0	6.5	5.0	6.0	15.5	12.5	14.0	18.5	16.0	17.5
26	.0	.0	.0	6.0	5.0	5.5	16.0	13.0	14.5	16.0	14.5	15.0
27	.0	.0	.0	7.0	4.0	5.5	16.5	13.5	15.0	14.5	13.5	14.0
28	.0	.0	.0	8.0	5.0	6.5	17.0	13.5	15.5	15.0	13.5	14.0
29	.0	.0	.0	9.0	5.5	7.5	17.5	15.0	16.0	15.0	14.0	14.5
30	---	---	---	9.0	7.0	8.0	18.5	15.5	16.5	15.0	14.5	14.5
31	---	---	---	8.0	7.0	7.5	---	---	---	15.0	14.0	14.5
MONTH	.0	.0	.0	9.0	.0	2.5	18.5	5.0	11.5	22.0	11.5	16.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	16.5	14.0	15.5	20.0	18.5	19.5	25.5	23.0	24.0	20.0	17.0	18.5
2	17.5	15.5	16.5	21.0	19.0	20.0	26.5	23.0	24.5	19.0	17.0	18.0
3	19.0	16.5	17.5	21.5	20.0	21.0	24.0	19.5	22.0	18.5	16.5	17.5
4	19.5	17.5	18.5	22.0	20.0	21.0	19.5	17.5	18.5	19.0	15.5	17.0
5	20.0	18.0	19.0	22.0	20.5	21.5	21.5	17.0	19.5	20.0	16.0	18.0
6	19.0	16.5	18.0	22.0	20.5	21.5	23.0	19.0	21.0	21.0	17.5	19.0
7	16.5	15.5	16.0	22.5	20.5	21.5	23.0	20.5	21.5	20.5	18.5	19.5
8	17.0	15.0	16.0	22.0	20.5	21.0	23.5	20.0	21.5	19.0	17.0	18.0
9	18.5	15.5	17.0	24.0	21.0	22.5	24.0	19.5	21.5	19.0	15.5	17.0
10	19.5	17.5	18.5	24.0	21.5	23.0	24.0	20.5	22.0	19.0	16.0	17.5
11	21.5	18.5	20.0	24.0	22.0	23.0	24.0	20.5	22.0	19.5	17.5	18.0
12	22.0	19.5	20.5	22.5	21.0	22.0	22.5	20.5	21.5	18.5	17.0	18.0
13	21.5	20.0	20.5	23.0	20.5	21.5	24.0	20.5	22.0	18.0	16.5	17.0
14	20.0	19.0	19.5	23.0	20.5	21.5	22.5	20.5	21.5	19.5	16.0	17.5
15	18.5	17.5	18.0	22.5	20.5	21.5	20.5	19.0	20.0	18.0	15.5	17.0
16	19.0	17.0	18.0	23.0	20.0	21.5	20.0	19.0	19.5	17.0	14.5	15.5
17	19.0	18.0	18.5	22.5	20.5	21.5	23.0	19.0	21.0	16.5	15.5	16.0
18	18.5	17.0	18.0	22.5	20.0	21.0	24.0	20.5	22.0	16.5	14.5	15.5
19	18.5	18.0	18.0	22.5	20.0	21.0	23.0	20.5	21.5	17.5	15.0	16.0
20	20.5	18.5	19.5	22.0	19.5	21.0	21.0	20.0	20.5	17.5	15.0	16.5
21	21.5	19.5	20.5	23.0	20.0	21.5	23.0	19.0	21.0	16.5	15.0	15.5
22	21.5	20.0	21.0	24.5	20.5	22.5	21.5	19.0	20.5	16.5	14.0	15.0
23	21.5	20.5	21.0	25.5	22.0	23.5	22.0	18.0	20.0	16.0	14.5	15.0
24	20.5	19.5	20.0	24.5	22.5	23.5	23.0	19.0	21.0	15.0	13.5	14.0
25	20.5	19.0	20.0	24.0	21.5	22.5	21.0	18.5	20.0	15.0	12.5	14.0
26	20.5	19.0	19.5	24.5	21.0	22.5	19.5	18.0	18.5	15.0	12.5	13.5
27	20.0	19.0	19.5	25.0	22.0	23.5	19.5	17.0	18.0	16.0	13.0	14.5
28	19.5	18.0	18.5	25.5	22.0	23.5	20.5	17.0	19.0	16.5	14.0	15.0
29	20.0	18.0	19.0	24.5	22.5	23.5	20.5	18.0	19.0	16.5	14.5	15.5
30	20.0	19.0	19.0	26.0	22.0	24.0	20.0	17.5	18.5	17.0	14.5	15.5
31	---	---	---	26.0	22.0	24.0	19.0	17.0	17.5	---	---	---
MONTH	22.0	14.0	18.5	26.0	18.5	22.0	26.5	17.0	20.5	21.0	12.5	16.5
YEAR	26.5	.0	11.5									

06309075 SUNDAY CREEK NEAR MILES CITY, MT

LOCATION.--Lat 46°28'23", long 105°50'34", in NW1/4 SW1/4 SW1/4 sec.3, T.8 N., R.47 E., Custer County, Hydrologic Unit 10100001, on left bank 15 ft (5 m) downstream from bridge on FAS Route 489, 5.5 mi (8.8 km) downstream from confluence of North and South Sunday Creeks, 9.5 mi (15.3 km) upstream from mouth, and 5.5 mi (8.8 km) north of Miles City.

DRAINAGE AREA.--714 mi² (1,849 km²).

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,380 ft (725 m), from topographic map.

REMARKS.--Records fair except those for winter period and periods of no gage-height, which are poor. No gage-height record Nov. 8 to Dec. 10, Dec. 31 to Feb. 25, and Sept. 16-28. Diversions for irrigation of about 400 acres (1.62 km²) above station. Several observations of water temperature were made during the year and are available in files of Helena district office.

AVERAGE DISCHARGE.--6 years, 46.5 ft³/s (1.319 m³/s), 33,690 acre-ft/yr (41.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,760 ft³/s (191 m³/s) May 7, 1975, gage height, 13.30 ft (4.054 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,310 ft³/s (65.4 m³/s) June 16, gage height, 7.94 ft (2.420 m), only peak above base of 500 ft³/s (14.2 m³/s); no flows on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.05	.75	.00	.00	.11	.00	36
2	.00	.00	.00	.00	.00	.05	.75	.00	.00	.04	.00	21
3	.00	.00	.00	.00	.00	.05	.62	.00	.00	.00	.00	11
4	.00	.00	.00	.00	.00	.05	.50	.00	.00	.00	.00	6.1
5	.00	.00	.00	.00	.00	.05	.50	.00	.00	.00	.00	3.4
6	.00	.00	.00	.00	.00	.05	.62	.00	.00	.00	.00	2.4
7	.00	.00	.00	.00	.00	.05	.39	.00	.00	.00	.00	1.4
8	.00	.00	.00	.00	.00	.05	.30	.00	.00	.00	.00	.89
9	.00	.00	.00	.00	.00	.10	.22	.00	.00	.00	.00	.75
10	.00	.00	.00	.00	.00	.12	.39	.00	.00	.00	.00	.62
11	.00	.00	.00	.00	.00	1.3	.39	.00	.00	.00	.00	.50
12	.00	.00	.00	.00	.00	1.6	.39	.00	.00	.00	.00	.75
13	.00	.00	.00	.00	.00	1.7	.22	.00	1.4	.00	.00	.75
14	.00	.00	.00	.00	.00	1.5	.18	.00	280	.00	.00	51
15	.00	.00	.00	.00	.00	52	.15	.00	1130	.00	3.8	118
16	.00	.00	.00	.00	.00	265	.11	.00	1500	.00	83	50
17	.00	.00	.00	.00	.00	165	.11	.00	462	.00	66	10
18	.00	.00	.00	.00	.00	106	.04	.00	204	.00	41	15
19	.00	.00	.00	.00	.00	58	.00	.00	88	.00	19	5.0
20	.00	.00	.00	.00	.00	179	.00	.00	60	.00	9.9	1.0
21	.00	.00	.00	.00	.00	52	.00	.00	102	3.1	4.7	1.5
22	.00	.00	.00	.00	.00	5.2	.00	.00	142	3.1	2.4	.80
23	.00	.00	.00	.00	.00	3.4	.00	.00	52	.89	1.1	.50
24	.00	.00	.00	.00	.00	3.1	.00	.00	17	.15	.50	.50
25	.00	.00	.00	.00	.00	2.1	.00	.00	8.1	.00	.11	.50
26	.00	.00	.00	.00	.20	1.8	.00	.00	3.8	.00	.00	.40
27	.00	.00	.00	.00	.10	2.1	.00	.00	1.8	.00	.00	.30
28	.00	.00	.00	.00	.15	1.4	.00	.00	1.0	.00	.00	.20
29	.00	.00	.00	.00	.10	1.4	.00	.00	.39	.00	110	.10
30	.00	.00	.00	.00	---	1.0	.00	.00	.18	.00	61	.00
31	.00	---	.00	.00	---	.89	---	.00	---	.00	24	---
TOTAL	.00	.00	.00	.00	.55	906.11	6.63	.00	4053.67	7.39	426.31	340.36
MEAN	.000	.000	.000	.000	.019	29.2	.22	.000	135	.24	13.8	11.3
MAX	.00	.00	.00	.00	.20	265	.75	.00	1500	3.1	110	118
MIN	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	1.1	1800	13	.00	8040	15	846	675

CAL YR 1979 TOTAL 22994.62 MEAN 63.0 MAX 2380 MIN .00 AC-FT 45610
WTR YR 1980 TOTAL 5741.02 MEAN 15.7 MAX 1500 MIN .00 AC-FT 11390

06309079 MUSTER CREEK NEAR KINSEY, MT

LOCATION.--Lat 46°37'05", long 105°45'08", in NW¼SW¼SE¼ sec.13, T.10 N., R.47 E., Custer County, Hydrologic Unit 10100004, on right bank, at bridge on Caprock Road, 5.8 mi (9.3 km) northwest of Kinsey.

DRAINAGE AREA.--28.5 mi^2 (73.8 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
MAR 12...	1000	2.6	685	8.0	-.5	.0	11.5	93	K200	> 10000
JUN 13...	0925	14	920	8.3	18.0	16.5	8.1	93	5600	17000
AUG 17...	1600	.09	780	8.3	30.0	28.0	7.0	97	870	1200

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
MAR 12...	48	0	11	4.9	130	9.0	4.9	120	0	98
JUN 13...	130	--	32	11	160	6.7	7.2	--	0	--
AUG 17...	22	0	6.1	1.7	180	18	4.8	270	0	220

DATE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
MAR 12...	1.9	210	3.5	.1	7.4	610	437	.83	4.28	1.1
JUN 13...	--	370	3.2	.3	6.5	657	--	.89	24.8	1.1
AUG 17...	2.2	190	6.3	.7	15	639	556	.87	.16	--

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)
MAR 12...	1.3	.10	1.8	1.9	.82	.03	23	3.4
JUN 13...	1.2	.06	17	17	6.3	.13	--	--
AUG 17...	3.8	--	--	--	--	.18	--	--

06309079 MUSTER CREEK NEAR KINSEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	BORON, DISSOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
MAR												
12...	1000	90	2	1	600	40	0	< 1	80	0	< 1	70
JUN												
13...	0925	40	42	1	2000	60	10	< 1	150	4	< 1	260
AUG												
17...	1600	680	--	3	--	30	--	< 1	130	--	8	--

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
MAR												
12...	0	0	< 3	70	17	170	40	17	30	13	520	11
JUN												
13...	0	100	< 3	440	14	83	190	36	300	7	6100	2
AUG												
17...	10	--	< 3	--	43	720	--	< 10	--	14	--	9

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR												
12...	.1	.1	0	< 10	64	4	2	1	220	< 6.0	170	< 3
JUN												
13...	1.0	.1	0	< 10	400	4	8	2	490	< 6.0	1600	8
AUG												
17...	--	.0	--	< 10	--	3	--	7	140	< 6.0	--	98

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DISSOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
MAR									
12...	1000	< 7.3	< 5.0	110	75	4.0	< 43	4.1	< 43
JUN									
13...	0925	11	7.5	< 1300	< 880	7.3	1400	7.1	1300

06309079 MUSTER CREEK NEAR KINSEY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)
MAR 12...	1000	.0	2.6	2680	19	96	97	98	99	100
JUN 13...	0925	16.5	14	21700	820	84	96	100	--	--
AUG 17...	1600	28.0	.09	13000	3.2	100	--	--	--	--
29...	1230	17.5	4.8	17600	228	--	--	--	--	--

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
MAR 12...	1000	3	5	13	17	22	32	53	74	91	100
JUN 13...	0925	4	16	33	37	43	52	68	84	96	100

06309145 CUSTER CREEK NEAR KINSEY, MT

LOCATION.--Lat 46°42'03", long 105°29'14", in NE¼NW¼NW¼ sec.19, T.11 N., R.50 E., Prairie County, Hydrologic Unit 10100001, on right bank, at prairie trail ford and just upstream from railroad bridge, about 0.8 river mile (1.3 km) upstream from mouth, and 12.0 mi (19.3 km) northeast of Kinsey.

DRAINAGE AREA.--151 mi^2 (391 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
MAR 12...	1430	1.2	1710	8.4	3.5	.0	11.3	92	K3	> 10000
JUN 14...	0835	.17	2420	8.6	19.0	20.0	8.5	100	K3600	4700
JUL 14...	1300	.07	2950	8.6	30.0	28.5	7.9	110	800	520
AUG 17...	1705	3.3	1140	8.1	29.0	28.0	6.9	96	770	4600

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
MAR 12...	240	28	48	28	280	8.8	7.0	250	4	210
JUN 14...	300	41	67	31	450	13	10	300	8	260
JUL 14...	440	110	87	55	560	12	11	380	14	330
AUG 17...	54	0	14	4.5	220	14	6.4	300	0	250

DATE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
MAR 12...	1.6	630	4.7	.3	6.2	1170	1140	1.59	3.79	.59
JUN 14...	1.3	960	4.6	.4	9.1	1750	1700	2.38	.80	1.5
JUL 14...	1.6	1300	7.5	.7	3.3	2250	2230	3.06	.43	.04
AUG 17...	3.9	370	2.8	.7	11	766	795	1.04	6.83	3.2

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
MAR 12...	.64	.02	2.4	2.4	.17	.03	27	.9	210	130
JUN 14...	1.5	.20	1.1	1.3	.10	.01	27	1.1	380	30
JUL 14...	.00	.01	.97	.98	.04	.01	15	.8	390	20
AUG 17...	3.2	7.0	2.2	9.2	4.20	.09	--	--	260	250

06309145 CUSTER CREEK NEAR KINSEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)
MAR 12...	1430	20	3	1	200	40	0	< 1	0	< 1	10	10
JUN 14...	0835	40	--	2	--	100	--	< 1	--	< 1	--	0
AUG 17...	1705	100	3	2	200	50	10	< 1	2	1	370	10

DATE	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)
MAR 12...	3	< 3	12	< 10	7	< 10	30	25	150	43	.1
JUN 14...	--	3	--	13	--	50	--	45	--	23	--
AUG 17...	70	< 3	350	20	270	25	180	22	3200	6	.2

DATE	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR 12...	.1	0	< 10	13	4	1	1	720	< 6.0	40	< 3
JUN 14...	.0	--	< 10	--	8	--	2	1300	< 10	--	< 3
AUG 17...	.1	0	< 10	390	13	8	4	320	< 6.0	1200	7

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DISSOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
MAR 12...	1430	< 20	< 14	9.7	6.6	< 8.6	6.7	< 8.8	6.8

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .0004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)
MAR 12...	1430	.0	1.2	312	1.0	--	--
JUN 14...	0835	20.0	.17	138	.06	--	--
17...	1700	24.5	5.0	203	2.7	--	--
JUL 14...	1300	28.5	.07	60	.01	--	--
AUG 17...	1705	28.0	3.3	12600	112	98	100

06309145 CUSTER CREEK NEAR KINSEY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
MAR											
12...	1430	4	8	17	24	26	32	47	69	85	100

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO JULY 1980

DATE TIME	MAR 12,80 1430		JUN 14,80 0835		JUL 14,80 1300	
TOTAL CELLS/ML	1600		290		5600	
DIVERSITY: DIVISION	0.0		1.5		1.0	
.CLASS	0.0		1.5		1.0	
..ORDER	0.7		1.5		1.6	
...FAMILY	1.4		1.9		1.9	
....GENUS	1.4		2.1		2.2	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	--	-	--	-	180	3
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	43#	15	13	0
....CLOSTERIOPSIS	--	-	14	5	--	-
....DICTYOSPHAERIUM	--	-	--	-	130	2
....OOCYSTIS	--	-	--	-	26	0
....SELENASTRUM	--	-	--	-	260	5
....TETRAEDRON	--	-	--	-	13	0
..ZYGNEMATALES						
...DESMIDIACEAE						
....COSMARIUM	--	-	--	-	13	0
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	--	-	100	2
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	57#	20	26	0
....COCCONEIS	--	-	--	-	13	0
...CYMBELLACEAE						
....CYMBELLA	--	-	--	-	77	1
...FRAGILARIACEAE						
....FRAGILARIA	--	-	--	-	13	0
...NAVICULACEAE						
....ENTOMONEIS	--	-	--	-	13	0
....GYROSIGMA	--	-	--	-	13	0
....NAVICULA	--	-	--	-	140	3
...NITZSCHIACEAE						
....NITZSCHIA	--	-	57#	20	330	6
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	110#	40	510	9
....ANACYSTIS	290#	18	--	-	220	4
..HORMOGONALES						
...OSCILLATORIACEAE						
....OSCILLATORIA	930#	59	--	-	3500#	62
...RIVULARIACEAE						
....RAPHIDIOPSIS	360#	23	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06324500 POWDER RIVER AT MOORHEAD, MT

LOCATION.--Lat 45°04'04", long 105°52'10", in NW¼SE¼NW¼ sec.8, T.9 S., R.48 E., Powder River County, Hydrologic Unit 10090207, on left bank 500 ft (152 m) downstream from discontinued post office at Moorhead, 6.2 mi (10.0 km) upstream from Buffalo Creek, and at mile 184.8 (297.3 km).

DRAINAGE AREA.--8,088 mi^2 (20,948 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1929 to September 1972, October 1974 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1932(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,334.6 ft (1,016.39 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Aug. 28, 1931, nonrecording gage at site 0.3 mi (0.5 km) upstream at different datum. Aug. 28, 1931, to Mar. 21, 1956, water-stage recorder at site 1.2 mi (1.9 km) upstream at different datum. Mar. 22 to July 24, 1956, nonrecording gage at site 0.3 mi (0.5 km) downstream at different datum. July 25 to Sept. 12, 1956, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Some regulation by three reservoirs in Wyoming with combined usable capacity of 36,800 acre-ft (45.4 hm^3). Diversions for irrigation of about 66,300 acres (268 km^2) above station.

AVERAGE DISCHARGE.--49 years, 463 ft^3/s (13.11 m^3/s), 335,400 acre-ft/yr (414 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft^3/s (651 m^3/s) June 17, 1962, gage height, 12.77 ft (3.892 m), from graph based on gage readings, from rating curve extended above 7,000 ft^3/s (198 m^3/s) on basis of slope-area measurement of peak flow; maximum gage height, 17.7 ft (5.39 m) Mar. 21, 1956, site and datum then in use (ice jam); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 30, 1923, reached a stage of 19 ft (5.8 m), site and datum use 1931-56, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,210 ft^3/s (62.6 m^3/s) May 27, no peaks above base of 3,700 ft^3/s (105 m^3/s); maximum gage height, 5.70 ft (1.737 m) Feb. 26 (backwater from ice); minimum discharge, 90 ft^3/s (2.55 m^3/s) Jan. 28-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	96	262	114	150	110	500	338	344	556	323	226	213
2	92	276	112	150	140	300	337	338	590	296	220	226
3	105	270	110	140	150	260	323	329	607	330	233	248
4	109	262	112	130	160	250	330	338	765	352	233	220
5	123	262	116	130	160	230	323	366	615	345	226	226
6	128	248	128	120	150	220	316	366	534	303	213	276
7	139	240	108	110	140	230	303	351	508	270	200	262
8	142	240	120	110	130	240	310	332	477	240	193	262
9	168	248	120	110	140	250	323	338	452	213	187	226
10	187	255	105	108	140	270	345	347	424	193	187	233
11	187	262	100	100	130	300	316	402	409	187	187	233
12	193	276	112	120	140	300	296	433	382	162	180	240
13	200	270	110	135	125	320	289	416	366	124	174	233
14	193	255	113	130	100	340	296	485	508	119	187	255
15	180	248	110	130	96	320	276	794	439	124	345	283
16	193	255	96	120	96	310	270	660	669	150	687	262
17	193	255	110	118	110	320	270	624	734	168	802	276
18	193	255	120	110	120	340	255	498	461	213	915	316
19	220	248	120	100	160	330	255	409	651	220	616	352
20	226	248	118	100	156	320	248	352	477	233	485	330
21	248	200	118	110	160	400	240	316	565	240	439	330
22	255	190	118	118	168	500	233	310	359	233	359	289
23	240	156	110	128	300	580	248	295	296	226	330	240
24	248	119	110	140	700	462	409	289	283	226	303	233
25	248	120	118	120	900	394	454	541	316	233	270	233
26	248	120	123	100	1100	380	454	599	248	233	248	240
27	240	119	120	95	1000	352	454	1750	240	233	233	248
28	255	114	110	90	980	338	394	1190	462	226	220	233
29	255	118	110	90	800	338	380	852	387	233	220	220
30	262	118	120	90	---	338	352	678	366	233	213	213
31	262	---	128	90	---	323	---	633	---	240	200	---
TOTAL	6028	6509	3539	3592	8761	10355	9637	15975	14146	7121	9731	7651
MEAN	194	217	114	116	302	334	321	515	472	230	314	255
MAX	262	276	128	150	1100	580	454	1750	765	352	915	352
MIN	92	114	96	90	96	220	233	289	240	119	174	213
AC-FT	11960	12910	7020	7120	17380	20540	19110	31690	28060	14120	19300	15180

CAL YR 1979 TOTAL 114019 MEAN 312 MAX 2200 MIN 54 AC-FT 226200
WTR YR 1980 TOTAL 103045 MEAN 282 MAX 1750 MIN 90 AC-FT 204400

06324500 POWDER RIVER AT MOORHEAD, MT--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at bridge on county road, 1.1 mi (1.8 km) upstream from discontinued post office at Moorhead, 1.2 mi (1.9 km) upstream from discharge station.

PERIOD OF RECORD.--Water years 1951-53, 1956-57, 1969-72, 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: February 1951 to September 1953, October 1955 to September 1957, October 1974 to September 1977, March to September 1978, March to September 1979, April to September 1980.
SUSPENDED-SEDIMENT DISCHARGE: October 1974 to September 1977, March to September 1978, March to September 1979, April to September 1980.

REMARKS.--Flow regulated by reservoirs and diversions for irrigation upstream from station. Flow affected by ice during most of winter months.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum daily, 32.0°C July 7, 1951, July 23, 1980; minimum daily, 0.0°C on many days during winter periods most years.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 53,500 mg/L May 27, 1980; minimum daily mean, 5 mg/L Sept. 15, 1975.
SEDIMENT LOADS: Maximum daily, 2,230,000 tons (2,020,000 megagrams) May 20, 1978; minimum daily, 0.24 ton (0.22 megagram) Sept. 15, 1975.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum daily, 32.0°C July 23.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 53,500 mg/L May 27; minimum daily mean, 63 mg/L Aug. 13.
SEDIMENT LOADS: Maximum daily, 272,000 tons (247,000 megagrams) May 27; minimum daily, 30 tons (27 megagrams) Aug. 13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW (CFS) (00060)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
OCT												
12...	1530	--	193	2450	8.5	11.0	--	10.2	640	410	130	76
NOV												
08...	1200	--	240	2550	8.4	1.5	--	12.4	630	380	140	69
DEC												
06...	1040	128	--	2500	8.0	1.0	--	10.4	700	420	150	79
JAN												
10...	1000	108	--	3100	7.9	.0	--	12.8	870	500	200	91
FEB												
22...	1200	168	--	1460	7.7	.5	--	11.4	370	210	85	39
APR												
02...	1000	--	338	--	--	4.0	--	--	--	--	--	--
17...	1150	--	270	2930	8.3	12.0	--	9.7	720	490	160	77
MAY												
01...	1030	--	338	--	--	14.5	--	--	--	--	--	--
15...	1400	--	863	2130	8.2	17.0	--	8.0	480	290	110	49
JUN												
10...	1130	--	416	1550	8.4	22.0	1400	8.2	420	240	100	42
JUL												
08...	1300	--	240	1400	8.2	24.5	--	8.8	420	240	96	44
AUG												
04...	1230	--	233	1100	8.8	17.0	--	8.6	410	220	95	42
SEP												
03...	1400	--	248	2100	8.5	18.0	--	8.2	600	430	140	60

06324500 POWDER RIVER AT MOORHEAD, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT											
12...	290	5.0	8.5	230	730	210	.4	--	--	20	1600
NOV											
08...	320	5.5	7.6	250	690	220	.5	.9	.60	8.1	1610
DEC											
06...	310	5.1	6.9	280	800	200	.4	--	--	9.0	1720
JAN											
10...	430	6.3	8.8	370	900	330	.7	1.2	.12	14	2200
FEB											
22...	180	4.1	9.6	160	400	110	.3	--	--	9.5	930
APR											
02...	--	--	--	--	--	--	--	--	--	--	--
17...	410	6.7	8.4	230	980	210	.8	1.0	.08	7.8	1990
MAY											
01...	--	--	--	--	--	--	--	--	--	--	--
15...	260	5.2	7.0	190	600	200	.5	1.0	.09	5.7	1350
JUN											
10...	200	4.2	6.2	180	550	88	.5	--	--	8.9	1100
JUL											
08...	140	3.0	6.9	180	450	61	.4	.1	.26	6.0	913
AUG											
04...	77	1.7	6.4	190	390	15	.3	--	--	4.1	744
SEP											
03...	220	3.9	9.6	170	680	140	.4	--	--	5.3	1360

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT											
12...	2.18	834	.11	.04	.96	1.0	.33	--	--	390	30
NOV											
08...	2.19	1040	.35	.24	1.8	2.0	.48	--	.7	330	70
DEC											
06...	2.34	594	.36	.14	.79	.93	.14	--	--	350	180
JAN											
10...	2.99	642	.59	.17	1.0	1.2	.09	8.9	.5	510	30
FEB											
22...	1.26	422	.53	.07	2.3	2.4	.27	--	--	300	150
APR											
02...	--	--	--	--	--	--	--	--	--	--	--
17...	2.71	1450	1.7	.36	2.3	2.7	.82	6.6	3.0	440	80
MAY											
01...	--	--	--	--	--	--	--	--	--	--	--
15...	1.84	3150	.32	.18	9.7	9.9	5.2	14	--	340	120
JUN											
10...	1.50	1240	.31	.04	3.6	3.6	1.3	--	--	220	40
JUL											
08...	1.24	592	.00	.00	1.3	1.3	.11	13	--	160	< 10
AUG											
04...	1.01	468	.21	.04	.95	.99	.08	--	--	120	< 10
SEP											
03...	1.85	911	.12	.05	1.7	1.7	.59	--	--	280	< 10

06324500 POWDER RIVER AT MOORHEAD, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)
NOV 08...	1200	4	1	0	0	1	1	12	0	20	3	22000
MAY 15...	1400	24	1	10	0	5	1	130	0	250	4	220000

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
NOV 08...	13	0	400	0	.1	.0	23	0	3	2	150	10
MAY 15...	170	0	4000	10	.4	.0	200	3	9	2	860	10

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB TOTAL (UG/L) (39516)	PCB, TOTAL IN BOTTOM MATERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	CHLORDANE, TOTAL (UG/L) (39350)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)	DDT, TOTAL (UG/L) (39370)
OCT 12...	1530	.00	0	.00	.0	.0	0	.00	.0	.00	.0	.00

DATE	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DIAZINON, TOTAL (UG/L) (39570)	DIELDRIN TOTAL (UG/L) (39380)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDOSULFAN, TOTAL (UG/L) (39388)	ENDOSULFAN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39389)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	HEPTACHLOR, TOTAL (UG/L) (39410)	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)
OCT 12...	.0	.00	.00	.0	.00	.0	.00	.0	.00	.00	.0	.00

DATE	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)	METHYL PARATHION, TOTAL (UG/L) (39600)	METHYL TRITHION, TOTAL (UG/L) (39790)	MIREX, TOTAL (UG/L) (39755)	PARATHION, TOTAL (UG/L) (39540)	PERTHANE IN BOTTOM MATERIL (UG/KG) (81886)	PERTHANE TOTAL (UG/L) (39034)
OCT 12...	.0	.00	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00

DATE	TOXAPHENE, TOTAL (UG/L) (39400)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)	TOTAL TRITHION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG) (39731)	2, 4-DP TOTAL (UG/L) (82183)	2,4-DP IN BOTTOM MATERIL (UG/KG) (34609)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG) (39741)	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG) (39761)
OCT 12...	0	0	.00	.00	0	.01	.0	.00	0	.00	.0

06324500 POWDER RIVER AT MOORHEAD, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1							---	19.0	22.0	25.0	27.0	20.0
2							4.0	19.0	18.0	26.0	27.0	24.0
3							6.0	22.0	24.0	26.0	18.0	19.0
4							12.0	21.0	25.0	26.0	14.0	21.0
5							12.0	22.0	24.0	27.0	26.0	24.0
6							14.0	21.0	17.0	29.0	27.0	19.0
7							7.0	20.0	18.0	25.0	24.0	23.0
8							11.0	19.0	20.0	28.0	18.0	16.0
9							12.0	18.0	27.0	28.0	25.0	20.0
10							10.0	15.0	26.0	31.0	24.0	23.0
11							10.0	15.0	28.0	29.0	29.0	17.0
12							10.0	15.0	26.0	24.0	24.0	19.0
13							14.0	16.0	28.0	24.0	22.0	19.0
14							17.0	19.0	25.0	22.0	24.0	23.0
15							13.0	18.0	20.0	26.0	18.0	14.0
16							16.0	18.0	24.0	29.0	19.0	17.0
17							19.0	19.0	24.0	27.0	23.0	19.0
18							18.0	18.0	25.0	27.0	25.0	19.0
19							16.0	20.0	20.0	26.0	17.0	16.0
20							24.0	14.0	27.0	24.0	20.0	21.0
21							22.0	26.0	25.0	27.0	23.0	15.0
22							19.0	27.0	28.0	31.0	22.0	17.0
23							15.0	25.0	27.0	32.0	24.0	14.0
24							18.0	21.0	25.0	26.0	27.0	14.0
25							17.0	19.0	29.0	26.0	20.0	14.0
26							15.0	20.0	31.0	27.0	14.0	18.0
27							19.0	20.0	22.0	28.0	23.0	18.0
28							21.0	21.0	22.0	30.0	24.0	10.0
29							20.0	17.0	25.0	28.0	22.0	20.0
30							18.0	16.0	22.0	28.0	18.0	20.0
31							---	18.0	---	29.0	18.0	---
MEAN							15.0	19.5	24.0	27.0	22.0	18.5

WTR YR 1980 MEAN 21.0 MAX 32.0 MIN 4.0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR 02...	1000	4.0	338	1650	1510	60	87	96	99	100	--
MAY 01...	1030	14.5	338	2130	1940	61	88	96	99	100	--
JUN 10...	1130	22.0	416	2590	2910	59	78	88	97	100	--
SEP 03...	1400	18.0	248	1280	857	--	--	--	--	--	95

06324500 POWDER RIVER AT MOORHEAD, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	1600	1460	2100	1950	5760	8650	640	558	160	98	274	158
2	1580	1440	1940	1770	5840	9300	480	384	124	74	425	259
3	1470	1280	1860	1650	5360	8780	840	748	167	105	1080	723
4	1660	1480	2310	2110	9040	18700	1040	988	164	103	889	528
5	1670	1460	3010	2970	6960	11600	740	689	150	92	639	390
6	1670	1420	2510	2480	6720	9700	632	517	108	62	873	651
7	1580	1290	2380	2260	6760	9270	432	315	98	53	850	601
8	1570	1310	1970	1770	4560	5870	260	168	88	46	639	452
9	1890	1650	1980	1810	3760	4590	208	120	74	37	464	283
10	2220	2070	2200	2060	2320	2660	174	91	77	39	346	218
11	2360	2010	3190	3460	2320	2560	182	92	80	40	297	187
12	2130	1700	2680	3130	1920	1980	150	66	66	32	292	189
13	1980	1540	2280	2560	1680	1660	105	35	63	30	328	206
14	2140	1710	3960	5190	2880	3950	113	36	116	59	446	307
15	1870	1390	11500	25000	2080	2470	136	46	3700	4680	477	364
16	1720	1250	10300	18400	7440	18200	246	100	12600	24100	441	312
17	1580	1150	12800	21300	13100	26000	185	84	15600	33800	544	405
18	1290	888	10200	13700	7920	9860	254	146	20000	50400	1180	1010
19	1180	812	9610	10600	10300	19400	300	178	16700	27800	1260	1200
20	1100	737	7700	7320	9750	13200	251	158	15900	20800	576	513
21	1040	674	5400	4610	13000	19800	228	148	13400	15900	306	273
22	1010	635	4470	3740	10600	10300	202	127	7990	7740	351	274
23	1250	837	3380	2690	6960	5560	176	107	4930	4390	315	204
24	4230	4670	2880	2250	3040	2320	192	117	3500	2860	266	167
25	4960	6080	5720	8270	2640	2250	207	130	1800	1310	252	159
26	5230	6410	7600	12300	2640	1770	181	114	810	542	274	178
27	5150	6310	53500	272000	2800	1810	175	110	639	402	324	217
28	3560	3790	39600	127000	4320	5390	172	105	477	283	297	187
29	3170	3250	25800	59400	1920	2010	166	104	651	208	243	144
30	2480	2360	14800	27100	1520	1500	187	118	333	192	256	147
31	---	---	8220	14000	---	---	191	124	270	146	---	---
TOTAL	---	63063	---	664850	---	241110	---	6823	---	196423	---	10906

TOTAL LOAD FOR YEAR: 1183175 TONS.

06324710 POWDER RIVER AT BROADUS, MT

LOCATION.--Lat 45°25'37", long 105°24'05", in NE¼NE¼SE¼ sec.3, T.5 S., R.51 E., Powder River County, Hydrologic Unit 10090207, on right bank 100 ft (30.5 m) upstream from bridge on U.S. Highway 212, 0.4 mi (0.6 km) downstream from Doyle Creek, 1.0 mi (1.6 km) south of Broadus, 7 mi (11 km) upstream from Little Powder River,and at mile 162.0 (260.7 km).

DRAINAGE AREA.--8,748 mi^2 (22,657 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1975 to current year.

REVISED RECORDS.--WDR MT-78-1: 1976(M), 1977(M).

GAGE.--Water-stage recorder. Datum of gage is 3,016.30 ft (919.368 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Some regulation by three reservcoirs in Wyoming with combined usable capacity of 36,800 acre-feet (45.4 hm^3). Diversions for irrigation of about 70,000 acres (283 km^2) above station.

AVERAGE DISCHARGE.--5 years, 513 ft^3/s (14.53 m^3/s), 371,700 acre-ft/yr (458 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft^3/s (850 m^3/s) May 21, 1978, gage height, 12.96 ft (3.95 m^3/s); minimum daily, 6.6 ft^3/s (0.19 m^3/s) July 19, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,830 ft^3/s (51.8 m^3/s) May 28, gage height, 3.47 ft (1.058 m), no peak above base of 4,000 ft^3/s (113 m^3/s); maximum gage height observed, 4.72 ft (1.439 m) Feb. 27 (backwater from ice); minimum discharge, 58 ft^3/s (1.64 m^3/s) July 16.

CORRECTION.--A minimum daily discharge for water year 1979 of 25 ft^3/s occurred on July 27; the previously published figure was not the minimum.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	261	110	155	140	330	395	353	599	412	208	191
2	100	261	110	155	150	300	387	330	521	353	198	194
3	98	273	110	145	160	270	387	312	605	312	177	208
4	88	273	115	135	165	260	367	290	643	348	205	230
5	95	282	120	135	170	250	371	294	741	407	219	223
6	100	277	130	125	165	240	377	312	630	402	215	212
7	123	261	120	115	165	240	358	316	545	339	208	277
8	132	249	130	110	160	250	343	286	476	241	174	286
9	146	245	155	110	170	270	343	253	449	205	171	261
10	164	240	150	110	165	290	377	249	417	181	161	249
11	181	230	150	105	160	320	417	257	392	132	158	223
12	177	225	155	110	165	310	353	339	372	123	143	230
13	187	220	160	120	160	330	316	377	343	137	134	241
14	197	210	165	140	140	380	316	377	325	105	140	238
15	197	220	120	135	105	370	330	521	533	80	161	226
16	197	230	90	125	105	360	294	825	459	59	433	299
17	194	226	110	110	120	400	273	636	694	67	983	265
18	197	223	125	105	140	450	261	605	707	110	898	282
19	197	245	120	100	175	550	238	481	539	152	929	343
20	201	250	120	100	175	640	234	397	649	181	714	427
21	226	210	120	105	170	600	226	303	533	191	562	407
22	238	190	125	115	170	580	215	265	593	191	493	387
23	253	110	115	120	180	550	205	241	392	208	412	353
24	245	110	115	135	180	520	201	226	294	177	382	261
25	234	115	120	130	200	500	407	230	269	181	325	245
26	238	110	125	110	350	480	498	556	316	212	277	249
27	245	105	125	105	700	460	527	839	230	215	249	238
28	241	105	115	100	550	440	515	1530	155	238	223	253
29	253	110	115	95	450	430	438	898	459	226	191	245
30	257	110	125	100	---	407	397	694	438	187	177	208
31	257	---	140	110	---	392	---	643	---	197	197	---
TOTAL	5758	6176	3905	3670	6005	12169	10366	14235	14318	6569	10117	7951
MEAN	186	206	126	118	207	393	346	459	477	212	326	265
MAX	257	282	165	155	700	640	527	1530	741	412	983	427
MIN	88	105	90	95	105	240	201	226	155	59	134	191
AC-FT	11420	12250	7750	7280	11910	24140	20560	28240	28400	13030	20070	15770

CAL YR 1979 TOTAL 114541 MEAN 314 MAX 2500 MIN 25 AC-FT 227200
WTR YR 1980 TOTAL 101239 MEAN 277 MAX 1530 MIN 59 AC-FT 200800

06324710 POWDER RIVER AT BROADUS, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1975 to September 1978, March to September 1979, February to September 1980.

REMARKS.--Once-daily water temperatures are available in the District office.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 44,100 mg/L July 29, 1977; minimum daily mean, 24 mg/L Sept. 13, 1976.
SEDIMENT LOADS: Maximum daily, 1,570,000 tons (1,420,000 megagrams) May 21, 1978, minimum daily, 1.5 tons (1.4 megagrams) July 21, 22, 1977.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 40,700 mg/L May 28; minimum daily mean, 112 mg/L Aug. 14.
SEDIMENT LOADS: Maximum daily, 168,000 tons (152,000 megagrams) May 28; minimum daily, 18 tons (16 megagrams) July 16.

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)
OCT								
04...	1215	11.5	88	89	21	--	--	--
MAR								
20...	1030	.5	592	3370	5390	31	46	76
APR								
16...	1800	14.0	296	1800	1440	75	97	--
JUL								
24...	1245	24.0	172	155	72	--	--	--
24...	1715	--	172	159	74	--	--	--
SEP								
11...	1440	20.0	215	450	261	--	--	--
30...	1400	16.5	205	237	131	--	--	--

DATE	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. FALL DIAM. % FINER THAN 1.00 MM (70346)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)
OCT							
04...	--	--	--	--	96	--	--
MAR							
20...	81	90	98	100	--	--	--
APR							
16...	--	--	--	--	98	98	100
JUL							
24...	--	--	--	--	91	--	--
24...	--	--	--	--	90	--	--
SEP							
11...	--	--	--	--	95	--	--
30...	--	--	--	--	90	--	--

06324710 POWDER RIVER AT BROADUS, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1									---	---	---	---
2									---	---	---	---
3									---	---	---	---
4									---	---	---	---
5									---	---	---	---
6									---	---	---	---
7									---	---	---	---
8									---	---	---	---
9									---	---	---	---
10									---	---	---	---
11									---	---	---	---
12									---	---	---	---
13									---	---	---	---
14									---	---	---	---
15									---	---	---	---
16									---	---	---	---
17									---	---	---	---
18									---	---	---	---
19									---	---	2270	3370
20									---	---	3200	5530
21									---	---	3240	5250
22									---	---	3820	5980
23									---	---	3870	5750
24									---	---	4650	6530
25									---	---	4330	5850
26									1910	1800	3680	4770
27									2530	4780	3150	3910
28									1570	2330	2460	2920
29									---	---	1920	2230
30									---	---	1920	2110
31									---	---	1940	2050
TOTAL									---	8910	---	56250
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	1550	1650	2360	2250	11900	19200	1450	1610	135	76	389	201
2	1530	1600	1970	1760	7300	10300	910	867	132	71	352	184
3	1520	1590	1740	1470	6300	10300	663	559	141	67	372	209
4	1460	1450	1640	1280	6400	11100	712	669	185	102	546	339
5	1400	1400	1550	1230	8700	17400	798	877	176	104	845	509
6	1450	1480	1570	1320	9290	15800	715	776	184	107	908	520
7	1410	1360	2030	1730	5300	7800	484	443	160	90	871	651
8	1380	1280	1900	1470	5860	7530	264	172	138	65	895	691
9	1390	1290	1510	1030	5910	7160	208	115	137	63	772	544
10	1570	1600	1390	934	4290	4830	182	89	206	90	658	442
11	1870	2110	1380	958	3700	3920	156	56	143	61	478	288
12	1890	1800	2000	1830	3660	3680	139	46	119	46	393	244
13	1850	1580	2330	2370	2020	1870	151	56	120	43	321	209
14	1910	1630	1950	1980	1740	1530	151	43	112	42	311	200
15	1850	1650	2540	3570	5670	8870	120	26	180	78	340	207
16	1780	1410	8770	19500	3830	4750	116	18	1200	1790	482	389
17	1530	1130	8810	15100	5000	10500	118	21	12200	35300	454	325
18	1360	958	10800	17600	6980	13300	181	54	18700	45300	400	305
19	1340	861	9650	12500	8850	12900	140	57	13000	32600	710	658
20	1310	828	7900	8470	11000	19300	159	78	13400	25800	1260	1450
21	935	571	7900	6460	8200	11800	186	96	16900	25600	940	1030
22	860	499	7100	5080	7100	11400	175	90	14900	19800	676	706
23	840	465	5500	3580	10900	11500	182	102	10500	11700	506	482
24	900	488	4050	2470	10100	8020	149	71	7400	7630	344	242
25	2090	2300	3440	2140	7400	5370	175	86	5150	4520	294	194
26	3910	5260	7380	11100	4500	3840	190	109	3220	2410	286	192
27	4220	6000	12900	43700	2080	1290	188	109	1880	1260	279	179
28	3900	5420	40700	168000	1630	682	200	129	1240	747	310	212
29	2940	3480	22400	54300	4440	5650	198	121	820	423	335	222
30	2630	2820	27600	51700	2610	3090	163	82	550	263	272	153
31	---	---	17600	30600	---	---	143	76	446	237	---	---
TOTAL	---	55960	---	477482	---	254682	---	7703	---	216485	---	12177

TOTAL LOAD FOR YEAR: 1089649 TONS.

06324970 LITTLE POWDER RIVER ABOVE DRY CREEK, NEAR WESTON, WY

LOCATION.--Lat 44°55'45", long 105°21'06", in NW¼SW¼ sec.13, T.57 N., R.71 W., Campbell County, Hydrologic Unit 10090208, on left bank 3.1 mi (5.0 km) upstream from Dry Creek, 5.0 mi (8.0 km) south of the Wyoming-Montana State line, and 20 mi (32 km) north of Weston.

DRAINAGE AREA.--1,235 mi^2 (3,199 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1972 to current year.

REVISED RECORDS.--WDR WY-77-1: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,410 ft (1,039 m), from topographic map.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Diversion above station for irrigation of about 80 acres (32 hm^2) below station. Since August 1976, the Rawhide Mine has intermittentl pumped water into the river in T.52 N., R.71 W., about 45 mi (72 km) upstream.

AVERAGE DISCHARGE.--8 years, 25.2 ft^3/s (0.714 m^3/s), 18,260 acre-ft/yr (22.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,300 ft^3/s (150 m^3/s) May 19, 1978, gage height, 11.62 ft (3.542 m); maximum gage height, 11.63 ft (3.545 m) Mar. 20, 1978 (backwater from ice); no flow at times some years.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 130 ft^3/s (3.68 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Feb. 22	1400	*293	8.30	*5.25	1.600	Aug. 17	unknown	205	5.81	4.80	1.463
June 20	1200	162	4.59	4.55	1.387						

No flow Oct. 12-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.02	.55	1.2	1.5	23	5.9	1.9	.93	.34	.01	.05
2	.02	.02	.84	1.1	1.8	37	5.9	1.9	.68	.21	.01	.04
3	.02	.01	1.1	1.0	2.2	23	5.7	1.9	.54	.12	.02	.03
4	.02	.01	1.4	1.0	2.7	16	5.7	1.7	.48	.10	.02	.02
5	.02	.01	1.4	1.2	3.0	13	5.0	1.6	.30	.06	.02	.02
6	.02	.01	1.2	1.0	3.2	11	4.6	1.7	.08	.06	.02	.02
7	.02	.01	1.5	.90	2.8	9.4	4.6	1.4	.34	.04	.02	.02
8	.01	.01	1.2	.75	2.3	8.4	4.1	1.3	.34	.03	.02	.02
9	.01	.01	1.0	.65	2.3	8.1	4.1	1.3	.30	.03	.02	.02
10	.01	.01	1.1	.55	2.4	8.1	3.8	1.4	.05	.03	.02	.02
11	.01	.02	1.0	.50	2.2	8.1	3.8	1.7	.03	.02	.02	.02
12	.00	.02	1.0	.50	2.3	7.9	3.6	11	.03	.02	.04	.02
13	.00	.02	.95	.60	2.1	7.4	3.6	14	.04	.02	.03	.02
14	.00	.02	.90	.70	2.1	7.6	3.6	5.5	.08	.01	.03	.02
15	.00	.02	.85	.90	2.1	9.0	3.4	3.8	.10	.01	.04	.02
16	.00	.02	.80	1.3	2.1	10	3.8	3.6	.09	.01	25	.02
17	.01	.03	.85	1.8	2.5	12	3.4	3.2	.09	.01	180	.02
18	.01	.03	.95	2.0	3.0	11	3.2	2.7	.06	.02	30	.02
19	.01	.03	1.0	1.7	3.2	15	3.0	2.4	.05	.02	20	.02
20	.02	.02	1.1	1.4	8.4	13	2.9	2.3	70	.02	5.7	.02
21	.02	.02	1.2	1.5	79	13	2.7	2.1	53	.02	14	.02
22	.02	.02	1.2	1.7	210	14	2.9	1.7	54	.02	43	.02
23	.02	.04	1.1	2.0	136	14	2.6	1.4	32	.02	6.4	.01
24	.02	.10	1.2	2.2	92	11	2.4	1.3	17	.02	2.7	.01
25	.02	.20	1.3	2.2	96	8.6	2.3	1.3	5.2	.02	1.7	.01
26	.02	.35	1.2	2.1	101	7.6	2.0	1.3	3.2	.02	.84	.01
27	.02	.50	1.1	1.9	69	7.4	2.0	1.3	2.0	.02	.48	.01
28	.02	.45	1.0	1.5	34	6.5	2.0	1.1	1.0	.01	.34	.01
29	.03	.45	1.1	1.3	25	6.1	2.1	.93	.61	.01	.14	.01
30	.02	.45	1.1	1.2	---	5.9	1.9	1.0	.34	.01	.08	.01
31	.02	---	1.2	1.3	---	5.9	---	.93	---	.01	.06	---
TOTAL	.46	2.93	33.39	39.65	896.2	358.0	106.6	80.66	242.96	1.36	330.78	.58
MEAN	.015	.098	1.08	1.28	30.9	11.5	3.55	2.60	8.10	.044	10.7	.019
MAX	.03	.50	1.5	2.2	210	37	5.9	14	70	.34	180	.05
MIN	.00	.01	.55	.50	1.5	5.9	1.9	.93	.03	.01	.01	.01
AC-FT	.9	5.8	66	79	1780	710	211	160	482	2.7	656	1.2

CAL YR 1979 TOTAL 3786.74 MEAN 10.4 MAX 230 MIN .00 AC-FT 7510
WTR YR 1980 TOTAL 2093.57 MEAN 5.72 MAX 210 MIN .00 AC-FT 4150

06324970 LITTLE POWDER RIVER ABOVE DRY CREEK, NEAR WESTON, WY--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (JTU) (00070)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT										
05...	0845	.02	2920	8.3	16.0	8.0	--	9.9	94	< 1
12...	0815	.01	3000	8.1	--	11.0	4	9.0	--	K6
NOV										
06...	1300	.01	2740	8.1	9.0	7.0	5	10.9	99	K87
DEC										
03...	1315	1.1	4450	8.0	8.5	.5	7	12.5	98	K1
JAN										
07...	1425	.90	4440	8.0	-13.0	.0	20	10.2	78	K13
FEB										
11...	1610	2.2	4240	7.9	-1.0	.0	--	13.8	103	K1
MAR										
03...	1450	20	1540	7.8	-5.0	.0	--	11.8	91	K1
APR										
07...	1530	4.3	3104	8.1	7.0	1.0	--	13.3	103	130
MAY										
12...	1415	1.8	3750	8.2	14.5	16.0	--	9.8	114	57
14...	1200	5.9	5500	8.0	--	14.0	10	9.1	--	--
JUN										
16...	1445	.09	3450	8.2	24.0	24.0	10	11.1	146	180
JUL										
14...	1510	.01	2630	8.4	30.0	30.0	30	10.4	153	K42
AUG										
18...	1730	31	770	8.0	--	22.5	--	--	--	--
18...	1800	27	690	7.8	28.0	22.0	1600	6.6	86	--
23...	1100	--	1020	--	--	17.5	700	7.4	--	--
SEP										
23...	1415	.01	2540	8.2	16.5	15.0	10	9.3	103	K14
25...	1100	.17	2600	8.1	--	10.5	15	9.8	--	--

DATE	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)
OCT											
05...	K14	740	350	130	98	420	7.6	17	480	0	390
12...	--	840	450	140	120	430	6.4	17	--	--	390
NOV											
06...	320	830	490	150	110	370	5.6	19	420	0	340
DEC											
03...	30	1200	670	220	150	770	9.8	12	610	0	500
JAN											
07...	26	630	39	150	61	700	12	9.6	720	0	590
FEB											
11...	K14	1400	750	260	170	660	7.8	23	730	0	600
MAR											
03...	190	480	290	100	53	160	3.5	18	230	0	190
APR											
07...	26	1000	670	190	130	410	5.6	21	420	0	340
MAY											
12...	330	1100	720	200	140	570	7.6	27	430	0	360
14...	--	--	--	--	--	--	--	--	--	--	--
JUN											
16...	K3300	870	540	150	120	540	8.0	22	400	0	330
JUL											
14...	380	690	330	130	89	370	6.1	20	420	7	350
AUG											
18...	--	160	75	36	16	78	2.7	9.4	--	--	81
18...	--	170	64	39	17	79	2.9	9.2	130	0	100
23...	--	--	--	--	--	--	--	--	--	--	--
SEP											
23...	140	650	300	120	86	380	6.5	12	440	0	360
25...	--	--	--	--	--	--	--	--	--	--	--

06324970 LITTLE POWDER RIVER ABOVE DRY CREEK, NEAR WESTON, WY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT										
05...	3.8	1200	5.5	1.3	7.2	2240	2120	3.05	.12	.03
12...	--	1300	4.6	.9	20	--	2270	3.09	--	.02
NOV										
06...	5.3	1200	11	.9	8.4	2120	2080	2.88	.06	.05
DEC										
03...	9.8	2300	17	.7	12	3870	3780	5.26	11.5	.03
JAN										
07...	12	760	580	1.2	20	2360	2640	3.21	5.73	.35
FEB										
11...	15	2100	18	.8	13	3650	3610	4.96	21.7	.03
MAR										
03...	5.8	620	10	.4	12	1130	1090	1.54	61.6	--
APR										
07...	5.3	1500	11	.6	4.9	2510	2480	3.41	29.3	.01
MAY										
12...	4.3	1900	15	.6	5.9	3200	3070	4.35	15.6	.02
14...	--	--	--	--	--	--	--	--	--	--
JUN										
16...	4.0	1600	16	.8	9.4	2910	2660	3.96	.71	.02
JUL										
14...	2.8	1100	11	2.4	14	1980	1950	2.69	.05	.04
AUG										
18...	--	240	4.0	.4	6.2	--	440	.60	36.8	--
18...	3.3	240	3.5	.4	7.8	469	463	.64	34.3	.76
23...	--	--	--	--	--	--	--	--	--	--
SEP										
23...	4.4	1100	11	1.0	8.5	1980	1940	2.69	.05	.00
25...	--	--	--	--	--	--	--	--	--	--

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED (MG/L AS C) (00689)	PHENOLS (UG/L) (32730)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT											
05...	--	.04	.36	.40	.00	.00	6.0	.4	--	190	20
12...	--	.04	.43	.47	.00	--	--	--	--	180	30
NOV											
06...	.52	.06	.44	.50	.01	.01	8.0	--	--	190	20
DEC											
03...	.02	.05	.69	.74	.01	.00	30	.4	4	230	20
JAN											
07...	.34	.24	.86	1.1	.01	.01	13	.7	15	900	30
FEB											
11...	.03	.04	.96	1.0	.01	.01	22	.3	1	270	20
MAR											
03...	--	--	--	--	--	.05	22	2.2	3	300	70
APR											
07...	.01	.10	.50	.60	.04	.01	14	.1	1	250	20
MAY											
12...	.02	.03	1.3	1.3	.02	.01	10	.7	0	300	520
14...	--	--	--	--	--	--	--	--	--	--	--
JUN											
16...	.03	.20	.46	.66	.04	.01	19	1.4	4	230	40
JUL											
14...	.02	.04	1.3	1.3	.06	.02	13	.7	1	230	20
AUG											
18...	.21	--	--	--	.50	--	--	--	--	--	--
18...	.50	.02	11	11	.63	.03	13	--	7	110	35
23...	--	--	--	--	--	--	--	--	--	--	--
SEP											
23...	.00	.01	.58	.59	.03	.02	18	.3	2	170	30
25...	--	--	--	--	--	--	--	--	--	--	--

06324970 LITTLE POWDER RIVER ABOVE DRY CREEK, NEAR WESTON, WY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)
OCT 05...	0845	0	1	1	100	30	0	< 1	4
DEC 03...	1315	--	--	--	--	--	--	--	--
MAR 03...	1450	10	1	1	200	50	0	< 1	1
AUG 18...	1800	160	12	2	400	70	10	< 1	1
SEP 23...	1415	--	--	--	--	--	--	--	--

DATE	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)
OCT 05...	4	20	10	0	< 3	2	< 10	20
DEC 03...	--	--	--	--	--	--	--	--
MAR 03...	< 1	0	0	0	< 3	13	< 10	6
AUG 18...	< 1	80	0	46	< 3	140	< 10	140
SEP 23...	--	--	--	--	--	--	35	--

DATE	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)
OCT 05...	< 10	40	50	120	73	.4	.1	3	1
DEC 03...	--	--	--	--	--	--	--	--	--
MAR 03...	29	40	48	190	160	.0	.1	2	< 10
AUG 18...	< 10	70	14	800	3	.7	.1	1	< 10
SEP 23...	--	--	--	--	--	--	--	--	--

DATE	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	CYANIDE TOTAL (MG/L AS CN) (00720)
OCT 05...	2	4	1	3	2000	< 6.0	20	< 3	--
DEC 03...	--	--	--	--	--	--	--	--	.00
MAR 03...	13	1	1	1	1200	< 6.0	50	10	--
AUG 18...	84	0	4	2	450	< 6.0	910	< 3	--
SEP 23...	--	--	--	--	--	--	--	--	--

06324970 LITTLE POWDER RIVER ABOVE DRY CREEK, NEAR WESTON, WY--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) (01003)	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD) (01028)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)
OCT								
05...	0845	12	150	0	0	3	0	4
MAR								
03...	1450	18	140	0	0	3	10	5
AUG								
18...	1800	32	200	0	4	5	10	5

DATE	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB) (01052)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G) (01053)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG) (71921)	MOLYBDENUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01063)	NICKEL, RECOV. FM BOTTOM MATERIAL (UG/G AS NI) (01068)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) (01148)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) (01093)
OCT							
05...	15	700	.01	0	5	0	17
MAR							
03...	0	240	.02	0	10	0	22
AUG							
18...	20	330	.04	2	10	1	33

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DISSOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
OCT									
05...	0845	< 39	< 27	< .4	< .3	23	< .4	23	< .4
MAR									
03...	1450	< 17	< 12	4.2	2.9	20	2.6	20	2.6
AUG									
18...	1800	< 6.1	< 4.1	240	160	8.1	100	7.8	95

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, (CFS) (00060)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
OCT						
03...	1745	--	--	.02	14	.00
05...	0845	8.0	--	.02	53	.00
NOV						
06...	1300	7.0	--	.01	36	.00
DEC						
03...	1315	.5	--	1.1	80	.24
JAN						
07...	1425	.0	--	.90	45	.11
FEB						
11...	1610	.0	--	2.2	32	.19
MAR						
03...	1450	.0	--	20	123	6.7
APR						
07...	1530	1.0	--	4.3	25	.29
MAY						
05...	1400	--	1.6	--	151	.65
JUN						
05...	1440	--	--	.30	133	.11
AUG						
21...	1140	--	--	15	526	21
SEP						
23...	1415	1.5	--	.01	24	.00

06324970 LITTLE POWDER RIVER ABOVE DRY CREEK, NEAR WESTON, WY--Continued

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
MAR 03...	1450	2	4	8	13	19	28	46	72	88	100
AUG 18...	1800	1	2	6	16	22	30	47	67	81	100

PERIPHYTON ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
NOV 06...	1300	1.34	1.18	.440	.000	364
APR 07...	1530	11.0	10.2	1.33	.120	602
JUL 14...	1510	7.09	6.14	2.30	.330	413
AUG 18...	1800	7.80	6.69	2.42	.160	459
SEP 23...	1415	3.70	2.68	.500	.090	2040

06324970 LITTLE POWDER RIVER ABOVE DRY CREEK, NEAR WESTON, WY--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO MARCH 1980

DATE	OCT 5,79		NOV 6,79		DEC 3,79		JAN 7,80		FEB 11,80		MAR 3,80	
TIME	0845		1300		1315		1425		1610		1450	
TOTAL CELLS/ML	3000		930		880		170		190		7100	
DIVERSITY: DIVISION	1.1		1.4		1.1		1.4		1.2		0.2	
.CLASS	1.2		1.4		1.3		1.4		1.8		0.2	
..ORDER	1.3		1.6		0.0		1.6		2.1		0.2	
...FAMILY	2.0		1.9		0.0		2.1		2.1		0.2	
....GENUS	2.0		2.0		0.0		2.2		2.1		0.2	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....ANKISTRODESMUS	53	2	150#	16	29	3	15	9	14	8	--	-
....DICTYOSPHAERIUM	79	3	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	57	7	--	-	--	-	--	-
....SELENASTRUM	--	-	14	1	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....CRUCIGENIA	--	-	55	6	--	-	--	-	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CARTERIA	26	1	--	-	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	27	3	--	-	5	3	43#	23	77	1
....GLOEOMONAS	--	-	--	-	290#	33	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	69	7	--	-	5	3	--	-	--	-
..PENNALES												
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	14	2	5	3	--	-	--	-
...FRAGILARIACEAE												
....SYNEDRA	26	1	--	-	--	-	10	6	--	-	--	-
...NAVICULACEAE												
....MASTOGLOIA	--	-	--	-	--	-	5	3	--	-	--	-
....NAVICULA	--	-	14	1	--	-	15	9	--	-	39	1
...NITZSCHIACEAE												
....NITZSCHIA	53	2	55	6	14	2	15	9	72#	38	77	1
.CHRYSOPHYCEAE	--	-	--	-	72	8	--	-	--	-	--	-
..CHRYSOMONADALES												
...CHROMULINACEAE												
....CHRYSOCOCCUS	840#	28	--	-	390#	44	--	-	43#	23	--	-
...OCHROMONADACEAE												
....KEPHYRIOPSIS	1400#	48	--	-	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
.CRYPTOPHYCEAE												
..CRYPTOMONADALES												
...CRYPTOMONADACEAE												
....CRYPTOMONAS	130	4	--	-	14	2	--	-	14	8	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....AGMENELLUM	370	12	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES												
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	--	-	--	-	--	-	7000#	97
EUGLENOPHYTA (EUGLENOIDS)												
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....TRACHELOMONAS	--	-	550#	59	--	-	96#	56	--	-	--	-

06324970 LITTLE POWDER RIVER ABOVE DRY CREEK, NEAR WESTON, WY--Continued

PHYTOPLANKTON ANALYSES, APRIL 1980 TO SEPTEMBER 1980

DATE	APR 7,80		MAY 12,80		JUN 16,80		JUL 14,80		SEP 23,80	
TIME	1530		1415		1445		1510		1415	
TOTAL CELLS/ML	1400		3700		3800		500		1300	
DIVERSITY: DIVISION	1.5		1.6		1.9		2.0		2.0	
.CLASS	1.5		1.6		2.0		2.0		2.0	
..ORDER	1.9		2.1		2.0		2.0		2.0	
...FAMILY	2.7		2.3		2.0		2.3		2.7	
....GENUS	2.9		2.8		2.6		2.9		2.9	
					3.3		3.0		3.1	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...MICRACTINIACEAE										
....GOLENKINIA	--	-	--	-	25	1	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	360#	25	320	9	500	13	26	5	26	2
....CHLORELLA	13	1	120	3	--	-	--	-	--	-
....CHODATELLA	--	-	--	-	25	1	--	-	--	-
....DICTYOSPHAERIUM	--	-	260	7	280	7	--	-	--	-
....OOCYSTIS	--	-	--	-	130	3	--	-	--	-
....SELENASTRUM	--	-	60	2	25	1	--	-	--	-
....TREUBARIA	--	-	140	4	50	1	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	300	8	--	-	52	4
....SCENEDESMUS	--	-	120	3	200	5	150#	31	100	8
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	88	6	20	1	--	-	--	-	150	12
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	38	3	100	3	75	2	52	10	64	5
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	13	1	--	-	--	-	--	-	13	1
....COCCONEIS	--	-	--	-	75	2	39	8	39	3
...CYMBELLACEAE										
....CYMBELLA	25	2	--	-	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	13	1	--	-	--	-	--	-	--	-
...EUNOTIACEAE										
....EUNOTIA	38	3	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....SYNEDRA	38	3	--	-	50	1	--	-	--	-
...NAVICULACEAE										
....GYROSIGMA	--	-	--	-	25	1	--	-	--	-
....NAVICULA	150	11	40	1	75	2	13	3	13	1
....PLAGIOTROPIS	13	1	--	-	--	-	--	-	--	-
....NITZSCHIA	360#	25	20	1	100	3	90#	18	26	2
.XANTHOPHYCEAE										
..HETEROCOCCALES										
...CHLOROTHECIACEAE										
....OPHIOCYTIUM	--	-	--	-	25	1	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	--	-	--	-	--	-	13	1
...CRYPTOMONADACEAE										
....CRYPTOMONAS	--	-	--	-	--	-	39	8	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	--	-	--	-	--	-	210#	16
....ANACYSTIS	--	-	1500#	40	930#	25	39	8	26	2
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	480	13	--	-	--	-	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	--	-	--	-	--	-	230#	17
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	--	-	25	1	13	3	--	-
....PHACUS	--	-	--	-	--	-	13	3	--	-
....TRACHELOMONAS	260#	18	560#	15	860#	23	26	5	360#	27
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	--	-	--	-	25	1	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06324970 LITTLE POWDER RIVER ABOVE DRY CREEK, NEAR WESTON, WY--Continued

BENTHIC INVERTEBRATE ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	AUG 23,80 1100	AUG 23,80 1140	AUG 23,80 1200
TOTAL COUNT	25	43	15
DIVERSITY: PHYLUM	0.9	0.0	1.0
.CLASS	1.3	0.0	1.0
..ORDER	2.3	1.7	1.6
...FAMILY	2.6	2.1	1.8
....GENUS	2.6	2.2	2.0
....GENUS-INSECTA	2.4	2.2	1.8

ORGANISM	COUNT	COUNT	COUNT
ANNELIDA			
.OLIGOCHAETA			
..PLESIOPORA			
...TUBIFICIDAE			
....LIMNODRILUS	9	--	--
....PELOSCOLEX	--	--	6
ARTHROPODA (ARTHROPODS)			
.CRUSTACEA			
..AMPHIPODA			
...TALITRIDAE			
....HYALLELA	2	--	--
.INSECTA			
..COLEOPTERA			
...ELMIDAE			
....DUBIRAPHIA	1	1	4
...HYDROPHILIDAE			
....BEROSUS	1	--	--
....LACCOBIUS	1	--	--
..DIPTERA			
...CERATOPOGONIDAE=HELEIDAE			
....UNKNOWN GENUS	--	--	1
...CHAOBORIDAE			
....CHAOBORUS	--	21	--
...CHIRONOMIDAE			
....ABLABESMYIA	--	2	--
....CHIRONOMUS	--	--	1
....TANYPUS	--	1	3
...MUSCIDAE			
....UNKNOWN GENUS	4	--	--
...TIPULIDAE			
....UNKNOWN GENUS	1	--	--
..EPHEMEROPTERA			
...BAETIDAE			
....BAETIS	--	9	--
...CAENIDAE			
....CAENIS	--	2	--
..HEMIPTERA			
...BELOSTOMATIDAE			
....LETHOCERUS	1	--	--
...CORIXIDAE			
...SIALIDAE			
....SIALIS	5	--	--
..ODONATA			
...COENAGRIONIDAE			
....ENALLAGMA	--	5	--

06326300 MIZPAH CREEK NEAR MIZPAH, MT

LOCATION.--Lat 46°15'39", long 105°17'34", in NW1/4 NE1/4 SW1/4 sec.24, T.6 N., R.51 E., Custer County, Hydrologic Unit 10090210, on left bank 10 ft (3 m) upstream from county bridge, 1.0 mi (1.6 km) upstream from mouth, and 1.6 mi (2.6 km) northwest of Mizpah.

DRAINAGE AREA.--797 mi^2 (2,064 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,490 ft (759 m), from topographic map.

REMARKS.--Water-discharge records fair except those below 0.5 ft^3/s (0.014 m^3/s) and winter period, which are poor. Minor irrigation or diversions above station.

AVERAGE DISCHARGE.--6 years, 20.1 ft^3/s (0.569 m^3/s), 14,560 acre-ft/yr (18.0 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,010 ft^3/s (56.9 m^3/s) Mar. 23, 1979, gage height, 9.75 ft (2.972 m), from rating curve extended above 1,690 ft^3/s (45.3 m^3); maximum gage height, 10.64 ft (3.243 m) Mar. 20, 1978 (backwater from ice); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 142 ft^3/s (4.02 m^3/s) June 16, gage height, 3.19 ft (0.972 m), no peaks above base of 150 ft^3/s (4.25 m^3/s); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.11	.25	.02	.00	.30	.73	.06	.16	.00	.00	.11
2	.04	.12	.40	.02	.00	.50	.66	.08	.16	.00	.00	.22
3	.04	.12	.60	.02	.00	.40	.62	.06	.19	.00	.00	.06
4	.04	.12	.88	.02	.00	.30	.58	.06	.11	.00	.00	.00
5	.04	.12	.69	.00	.00	.20	.55	.08	.08	.00	.00	.00
6	.04	.14	.41	.00	.00	.10	.48	.06	.14	.00	.00	.00
7	.06	.14	.32	.00	.00	.25	.38	.06	.32	.00	.00	.00
8	.06	.14	.32	.00	.00	.50	.35	.08	.66	.00	.00	.00
9	.06	.14	.32	.00	.00	1.0	.35	.06	.35	.00	.00	.00
10	.06	.12	.24	.00	.00	5.0	.35	.04	.19	.00	.00	.00
11	.06	.14	.20	.00	.00	10	.77	.06	1.2	.00	.00	.00
12	.08	.22	.20	.00	.00	15	1.0	.08	.99	.00	.00	.00
13	.08	.22	.20	.00	.00	25	.38	.11	.51	.00	.00	.58
14	.08	.19	.22	.00	.00	30	.30	.11	.82	.00	.00	.48
15	.08	.19	.12	.00	.00	25	.24	.08	2.0	.00	.93	.23
16	.08	.22	.02	.00	.00	20	.24	.08	26	.00	58	.16
17	.08	.24	.04	.00	.00	22	.19	.08	.99	.00	8.5	.08
18	.08	.22	.08	.00	.02	23	.14	.08	.62	.00	.77	.04
19	.08	.22	.10	.00	.08	21	.14	.06	.62	.00	.48	.00
20	.08	.19	.10	.00	.06	18	.12	.06	.62	.00	.19	.00
21	.08	.15	.06	.00	.06	14	.12	.04	.62	.00	.11	.00
22	.12	.11	.04	.00	.06	4.2	.04	.02	.55	.00	.02	.69
23	.12	.11	.04	.00	.06	3.7	.06	.04	.30	.00	.04	.41
24	.12	.14	.04	.00	.06	2.9	.12	.02	.24	.00	.02	.16
25	.11	.22	.04	.00	.10	2.2	.11	.02	.14	.00	.00	.14
26	.11	.27	.04	.00	.14	1.3	.11	.00	.11	.00	.00	.12
27	.08	.26	.04	.00	1.0	1.5	.11	.02	.08	.00	.04	.08
28	.08	.23	.04	.00	.75	1.0	.08	.06	.02	.00	.06	.08
29	.11	.20	.04	.00	.50	.93	.08	.06	.00	.00	.19	.04
30	.08	.18	.04	.00	---	.88	.06	.08	.00	.00	.24	.00
31	.11	---	.02	.00	---	.77	---	.12	---	.00	.16	---
TOTAL	2.38	5:19	6.15	.08	2.89	250.93	9.46	1.92	38.79	.00	69.75	3.68
MEAN	.077	.17	.20	.003	.10	8.09	.32	.062	1.29	.000	2.25	.12
MAX	.12	.27	.88	.02	1.0	30	1.0	.12	26	.00	58	.69
MIN	.04	.11	.02	.00	.00	.10	.04	.00	.00	.00	.00	.00
AC-FT	4.7	10	12	.2	5.7	498	19	3.8	77	.00	138	7.3

CAL YR 1979 TOTAL 10343.16 MEAN 28.3 MAX 471 MIN .00 AC-FT 20520
WTR YR 1980 TOTAL 391.22 MEAN 1.07 MAX 58 MIN .00 AC-FT 776

06326300 MIZPAH CREEK NEAR MIZPAH, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to current year.

REMARKS.--Scheduled sampling not possible during periods of no flow.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)
OCT 03...	1115	.04	0	4450	8.9	16.0	8.5	10.6	98	290	0	35
DEC 18...	1500	.09	0	5010	8.3	16.0	.5	11.3	86	480	0	73
MAR 26...	1450	1.2	1	1950	8.3	8.0	6.0	10.8	95	210	0	36
APR 23...	1630	.06	3	3530	8.8	17.5	18.0	10.6	122	280	0	43
MAY 23...	1030	.05	0	4230	8.6	30.0	22.0	6.2	79	310	0	40
JUN 26...	0945	.11	0	4000	8.8	24.0	19.0	7.4	87	320	0	45
AUG 26...	1500	.01	3	1980	8.7	13.5	16.0	11.2	122	120	0	29

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	BROMIDE DISSOLVED (MG/L AS BR) (71870)	IODIDE, DISSOLVED (MG/L AS I) (71865)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
OCT 03...	48	900	23	12	690	1100	5.2	.6	.2	.00	2.0	2520
DEC 18...	72	1200	24	12	990	1900	24	.5	--	--	15	3890
MAR 26...	28	380	12	6.7	330	690	7.0	.3	--	--	7.4	1350
APR 23...	42	720	19	8.7	560	1300	14	.5	.1	.00	4.4	2470
MAY 23...	51	940	23	11	700	1600	21	.6	--	--	6.5	3090
JUN 26...	50	850	21	14	600	1500	14	.8	.3	.00	3.7	2840
AUG 26...	12	420	17	9.0	360	590	8.2	.8	1.5	.00	7.0	1330

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT 03...	3.43	.27	.02	.16	.65	.81	.03	14	.6	580	10
DEC 18...	5.29	.95	.04	.11	.87	.98	.02	--	--	540	30
MAR 26...	1.84	4.37	.10	.15	.77	.92	.08	--	--	230	150
APR 23...	3.36	.40	.00	.02	1.1	1.1	.04	14	--	410	40
MAY 23...	4.20	.42	.01	.08	1.0	1.1	.07	--	--	580	50
JUN 26...	3.86	.84	.00	.04	1.3	1.3	.10	26	--	650	60
AUG 26...	1.81	.04	--	--	--	2.0	.37	18	1.8	1900	160

06326300 MIZPAH CREEK NEAR MIZPAH, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
JUN								
26...	0945	3	4	0	10	0	0	10

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
JUN								
26...	0	7	6	760	0	0	120	0

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUN								
26...	.0	.0	7	8	1	1	30	10

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
03...	1115	8.5	.04	58	.01
DEC					
18...	1500	.5	.09	67	.02
MAR					
26...	1450	6.0	1.2	106	.34
APR					
23...	1630	18.0	.06	162	.03
MAY					
23...	1030	22.0	.05	118	.02
JUN					
26...	0945	19.0	.11	114	.03
AUG					
26...	1500	16.0	.01	306	.01

06326500 POWDER RIVER NEAR LOCATE, MT

LOCATION.--Lat 46°25'48", long 105°18'34", in SW1/4 SW1/4 SE1/4 sec.23, T.8 N., R.51 E., Custer County, Hydrologic Unit 10090209, on right bank at downstream side of bridge on U.S. Highway 12, 0.1 mi (0.2 km) west of Locate, and 25 mi (40 km) east of Miles City, and at mile 29.4 (47.3 km).

DRAINAGE AREA.--13,189 mi^2 (24,160 km^2). Drainage area at site used Oct. 1, 1965, to Mar. 21, 1978, 13,194 mi^2 (34,172 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1938 to current year.

REVISED RECORDS.--WSP 926: 1939. WSP 1309: 1938-39 (M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,384.79 ft (726.884 m) National Geodetic Vertical Datum of 1929 (level by U.S. Army Corps of Engineers). Prior to July 11, 1947, nonrecording gage at bridge 50 ft (15 m) upstream, and July 11, 1947, to Sept. 30, 1965, water-stage recorder at present site and datum. Oct. 1, 1965, to Oct. 4, 1966, nonrecording gage, and Oct. 5, 1966, to Mar. 21, 1978, water-stage recorder 1.5 mi (2.4 km) downstream at different datum.

REMARKS.--Water-discharge records fair except those for winter period, which are poor. Some regulation by three reservoirs in Wyoming with combined usable capacity of 36,800 acre-ft (45.5 hm^3). Diversions for irrigation of about 74,500 acres (302 km^2) above station.

AVERAGE DISCHARGE.--42 years, 624 ft^3/s (17.67 m^3/s), 452,100 acre-ft/yr (557 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 31,000 ft^3/s (878 m^3/s) Feb. 19, 1943; maximum gage height, 12.27 ft (3.740 m) Mar. 16, 1978 (backwater from ice); no flow Jan. 16 to Feb. 12, Feb. 22-24, 1950, July 27, Sept. 21-27, Oct. 1, 1960, Sept. 4-8, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge undetermined, May 29, no peaks abve base of 5,000 ft^3/s (142 m^3/s); minimum gage height observed, 4.77 ft (1.454 m) Mar. 18 (backwater from ice jam); minimum discharge observed, 20 ft^3/s (0.57 m^3/s) July 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88	235	85	125	140	95	479	390	831	239	150	251
2	88	235	95	125	220	110	460	358	670	472	136	227
3	88	247	110	125	220	105	448	348	639	353	136	220
4	95	247	130	120	210	95	460	304	594	313	142	198
5	97	251	120	110	200	90	466	286	624	272	136	195
6	97	260	110	90	200	130	460	277	710	251	125	209
7	99	255	115	70	180	180	454	277	786	255	133	224
8	99	251	120	70	190	270	460	277	694	264	133	212
9	104	247	140	65	190	320	442	281	616	272	131	202
10	108	235	130	80	190	300	448	260	579	243	133	239
11	118	231	140	75	170	380	460	239	544	224	131	251
12	131	243	140	100	180	350	466	224	491	142	123	251
13	139	243	140	120	180	400	454	227	498	110	120	243
14	153	239	150	115	150	500	442	227	424	88	118	235
15	165	243	130	115	120	480	412	255	485	80	131	227
16	181	239	80	125	115	470	401	295	572	70	227	224
17	184	227	110	110	180	700	384	368	478	61	227	224
18	191	220	150	100	220	900	368	727	551	52	216	227
19	191	220	130	80	230	800	343	601	594	47	504	260
20	198	216	125	70	200	760	308	616	986	38	702	239
21	205	200	125	80	180	740	290	485	686	20	760	264
22	209	130	120	75	180	740	268	412	786	28	609	338
23	212	85	120	110	190	770	260	332	579	68	517	348
24	220	80	125	130	190	810	239	272	624	81	479	333
25	235	80	130	120	210	750	224	243	485	101	412	323
26	235	75	130	100	250	680	220	231	374	104	358	290
27	231	75	130	80	300	640	243	224	313	97	333	255
28	235	70	135	70	440	760	396	231	281	113	323	243
29	239	70	135	70	110	752	448	955	313	125	318	239
30	239	75	135	80	---	769	424	1260	231	133	299	235
31	231	---	130	100	---	531	---	955	---	147	277	---
TOTAL	5105	5724	3865	3005	5735	15377	11627	12437	17038	4863	8539	7426
MEAN	165	191	125	96.9	198	496	388	401	568	157	275	248
MAX	239	260	150	130	440	900	479	1260	986	472	760	348
MIN	88	70	80	65	110	90	220	224	231	20	118	195
AC-FT	10130	11350	7670	5960	11380	30500	23060	24670	33790	9650	16940	14730

CAL YR 1979 TOTAL 158626 MEAN 435 MAX 5020 MIN 70 AC-FT 314600
WTR YR 1980 TOTAL 100741 MEAN 275 MAX 1260 MIN 20 AC-FT 199800

06326500 POWDER RIVER NEAR LOCATE, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946, 1948-63, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1951 to July 1963, October 1974 to current year.
SUSPENDED-SEDIMENT DISCHARGE: March 1950 to September 1953, October 1974 to September 1977, March 1978 to current year.

REMARKS: No specific conductance extremes determined, record missing for more than 20% of days. Once-daily water temperatures are available in the District office. Flow affected by ice during most of winter months.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (Water years 1951-63, 1975-79): Maximum daily, 9,270 micromhos Dec. 16, 1955; minimum daily, 231 micromhos July 18, 1963.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 60,000 mg/L Aug. 6, 1953; minimum daily mean, 17 mg/L Dec. 3, 1974.
SEDIMENT LOADS: Maximum daily, 1,020,000 tons (925,000 megagrams) May 26, 1952; minimum daily, less than 1 ton (0.91 megagram) on several days during September 1950.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 32,300 mg/L May 31; minimum daily mean, 73 mg/L Mar. 4.
SEDIMENT LOADS: Maximum daily, 83,300 tons (75,600 megagrams) May 31; minimum daily, 5.9 tons (5.4 megagrams) July 21.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)
OCT											
02...	1100	91	3	3000	8.1	15.0	11.0	27	10.0	98	K53
DEC											
06...	1545	110	3	3700	8.2	7.5	.0	75	11.2	85	K8
19...	1330	125	0	3350	8.3	10.0	.0	90	10.8	81	K5
JAN											
22...	1330	71	1	3300	8.8	3.0	.0	--	7.2	53	K2
FEB											
29...	1530	106	0	2380	8.5	-11.0	.0	27	12.1	88	K1
MAR											
31...	1130	543	3	1950	8.3	8.5	3.5	1300	10.5	86	K5
APR											
23...	1000	260	0	3050	8.5	18.0	12.0	540	9.3	93	40
MAY											
21...	1200	453	0	2390	8.3	31.0	21.0	4200	6.2	76	560
JUN											
26...	1500	334	0	2270	8.4	27.5	25.0	1900	6.4	85	240
JUL											
31...	1115	144	0	1590	8.5	30.0	24.0	65	7.3	94	--
AUG											
26...	0930	361	64	2060	8.2	11.0	16.0	95	8.1	88	K300

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT											
02...	--	730	500	150	87	370	5.9	10	230	1100	170
DEC											
06...	K13	870	550	190	95	400	5.9	9.6	320	1100	200
19...	22	960	610	220	100	420	5.9	9.5	350	1100	260
JAN											
22...	K12	920	560	210	95	470	6.8	10	360	1100	290
FEB											
29...	K1500	580	300	130	63	350	6.3	7.1	280	710	210
MAR											
31...	250	600	380	140	61	310	5.5	7.6	220	770	160
APR											
23...	K10	710	490	160	76	440	7.2	10	220	1100	220
MAY											
21...	K300	510	310	120	52	320	6.1	9.4	200	780	180
JUN											
26...	K340	620	460	150	59	290	5.1	8.0	160	810	170
JUL											
31...	120	480	300	100	55	190	3.8	9.0	180	620	53
AUG											
26...	K500	560	390	140	52	260	4.8	10	540	770	89

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
OCT										
02...	.4	11	2000	2040	2.72	491	.02	.02	.05	.05
DEC										
06...	.4	12	2300	2200	3.13	683	.35	.29	.09	.01
19...	.4	13	2480	2340	3.37	837	.38	.38	.14	.19
JAN										
22...	.5	14	2520	2410	3.43	483	.45	.49	.09	--
FEB										
29...	.4	13	1650	1650	2.24	472	.33	.31	.04	.04
MAR										
31...	.5	7.8	1610	1590	2.19	2360	.42	.41	.22	.19
APR										
23...	.6	11	2160	2150	2.94	1520	.36	.31	.19	.07
MAY										
21...	.6	9.8	1650	1600	2.24	2020	.78	.77	.26	.06
JUN										
26...	.5	9.3	1650	1600	2.24	1490	.62	.60	.06	.08
JUL										
31...	.6	8.5	1200	1140	1.63	467	.00	.03	.00	.00
AUG										
26...	.6	5.0	1510	1430	2.05	1470	1.5	1.1	.41	.01

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N) (00607)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	IRON, DISSOLVED (UG/L AS FE) (01046)
OCT 02...	.56	.60	.61	.65	.02	.00	--	12	.4	10
DEC 06...	.84	.60	.93	.61	.08	.01	30	--	--	--
19...	.96	.69	1.1	.88	.06	.01	9.3	--	--	--
JAN 22...	.84	--	.93	--	.04	.00	7.0	--	--	--
FEB 29...	.44	.47	.48	.51	.01	.00	--	8.6	--	40
MAR 31...	3.1	2.7	3.3	2.9	1.4	.01	23	--	--	--
APR 23...	1.5	.69	1.7	.76	.46	.01	22	--	--	--
MAY 21...	9.1	.51	9.4	.57	3.4	.01	21	9.4	3.8	20
JUN 26...	8.6	1.1	8.7	1.2	2.0	.02	36	--	--	--
JUL 31...	.90	.54	.90	.54	.12	.04	16	--	--	--
AUG 26...	--	.77	--	.78	3.7	.03	--	8.7	--	50

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
OCT 02...	1100	1	1	100	100	0	0	200	0	5
DEC 19...	1330	--	--	--	--	--	--	--	--	--
FEB 29...	1530	2	2	200	100	0	0	0	0	0
MAR 31...	1130	--	--	--	--	--	--	--	--	--
MAY 21...	1200	23	2	1200	100	2	0	110	0	34
JUN 26...	1500	--	--	--	--	--	--	--	--	--
AUG 26...	0930	8	2	2000	100	4	1	260	0	75

DATE	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)
OCT 02...	0	4	2	2100	10	1	0	80	10	.1
DEC 19...	--	--	--	--	--	--	--	--	--	--
FEB 29...	0	4	0	890	40	8	0	30	30	.0
MAR 31...	--	--	--	--	--	--	--	--	--	--
MAY 21...	0	180	6	150000	20	130	1	3400	0	.3
JUN 26...	--	--	--	--	--	--	--	--	--	--
AUG 26...	2	260	7	240000	50	210	0	5200	20	.7

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
OCT 02...	.1	250	1	1	1	0	0	70	20
DEC 19...	--	--	--	--	--	0	--	--	--
FEB 29...	.0	8	0	2	1	1	0	100	30
MAR 31...	--	--	--	--	--	0	--	--	--
MAY 21...	.0	100	5	10	3	1	0	820	10
JUN 26...	--	--	--	--	--	0	--	--	--
AUG 26...	.0	290	5	0	3	2	0	1300	10

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2600	2540	---	---	3510	---	2280	2240	2450	2310	1580	1750
2	2630	2410	---	3300	---	---	2350	2160	2210	2400	1520	1680
3	2610	2400	3620	---	---	1680	2390	2210	1980	2580	1560	1680
4	2600	---	---	3280	3480	---	2410	2270	1920	1780	1550	1750
5	2620	2360	3410	---	---	2040	2410	2240	1770	1640	1530	1780
6	2620	2380	---	---	3390	---	2430	2180	1720	1680	1540	1790
7	2610	2350	3220	3100	---	2120	2430	2210	1770	1750	1620	1800
8	2590	2370	---	---	3480	---	2450	2250	1780	1750	1670	1820
9	2570	---	3130	3310	---	---	2500	2300	1860	1700	1680	2050
10	2580	---	---	---	---	1880	2540	2350	1850	1630	1560	1940
11	2590	---	---	3500	3700	---	2470	2410	1830	1650	1550	1770
12	2560	2450	3370	---	---	1670	2480	2430	1900	1750	1560	1850
13	2510	2480	---	---	3450	---	2560	2400	1750	1880	1560	1820
14	2600	2510	3470	3580	---	1740	2600	2350	1740	2000	1600	1750
15	2540	2500	---	---	3270	---	2640	2330	1840	2090	1650	1660
16	2500	2520	---	3490	---	---	2670	2260	1690	2170	1300	1600
17	2520	2490	3600	---	---	1800	2700	2200	1750	2200	1380	1570
18	2470	2460	---	3400	3200	---	2680	2260	1840	2250	1420	1560
19	2430	2460	3300	---	---	1810	2680	2050	1790	2280	1460	1880
20	2420	---	---	---	3000	1820	2700	2210	1500	2400	1380	1570
21	2400	---	3360	3480	---	1840	2750	2350	1440	2460	2500	1550
22	2440	---	---	---	2900	---	2840	2470	1900	2590	1950	1530
23	2500	---	---	3300	---	---	2900	2510	1750	2530	2300	1630
24	2510	---	3250	---	---	1800	2890	2620	1690	2530	2450	1590
25	2530	---	---	3030	2860	1870	2890	2700	1650	2330	2250	---
26	2520	---	3190	---	---	1910	2890	2870	2150	1910	2060	1450
27	2510	---	---	---	2640	1890	2900	2880	2290	1850	1950	1470
28	2530	---	3300	3210	---	1880	2910	2740	2520	1800	1850	1500
29	2550	---	---	---	2360	2050	2980	2740	2510	1750	1500	1560
30	2520	---	---	3510	---	2140	2720	1860	2340	1700	1800	1640
31	2490	---	3490	---	---	2200	---	2590	---	1630	1800	---
MEAN	2540	2450	3360	3350	3170	1900	2630	2380	1910	2030	1710	1690

WTR YR 1980 MEAN 2290 MAX 3700 MIN 1300

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	114	27	920	584	---	46	379	128	276	104	120	31
2	143	34	928	589	---	51	373	126	263	156	103	31
3	153	36	920	614	201	60	327	110	259	154	77	22
4	129	33	894	596	221	78	321	104	261	148	73	19
5	121	32	864	586	247	80	348	103	259	140	83	20
6	125	33	920	646	230	68	434	105	250	135	106	37
7	116	31	940	647	198	61	527	100	244	119	134	65
8	88	24	818	554	202	65	425	80	244	125	134	98
9	99	28	790	527	212	80	316	55	247	127	111	96
10	117	34	808	513	216	76	291	63	250	128	98	79
11	126	40	848	529	212	80	285	58	246	113	121	124
12	135	48	920	604	203	77	283	76	181	88	153	145
13	146	55	972	638	201	76	279	90	143	69	144	156
14	192	79	900	581	207	84	269	84	168	68	130	175
15	215	96	894	587	213	75	255	79	203	66	149	193
16	268	131	889	574	215	46	239	81	220	68	179	227
17	292	145	855	524	207	61	224	67	212	103	222	420
18	333	172	803	477	217	88	221	60	192	114	325	790
19	336	173	802	476	238	84	241	52	174	108	480	1040
20	371	198	---	467	252	85	272	51	160	86	639	1310
21	373	206	---	432	239	81	289	62	152	74	790	1580
22	384	217	---	211	232	75	232	47	149	72	1440	2880
23	438	251	---	69	235	76	239	71	145	74	2500	5200
24	538	320	---	54	245	83	252	88	137	70	3740	8180
25	636	404	---	54	257	90	228	74	126	71	4370	8850
26	704	447	---	51	275	97	216	58	118	80	3940	7230
27	760	474	---	51	281	99	219	47	115	93	3580	6190
28	800	508	---	47	282	103	228	43	119	141	4450	9130
29	882	569	---	38	298	109	252	48	123	37	4180	8490
30	906	585	---	40	315	115	286	62	---	---	3590	7450
31	902	563	---	---	354	124	292	79	---	---	3000	4300
TOTAL	---	5993	---	12360	---	2473	---	2351	---	2931	---	74558
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	1870	2420	2370	2500	31300	70200	1820	1170	232	94	1400	949
2	1600	1990	1980	1910	23200	42000	3920	5000	189	69	970	595
3	1400	1690	1720	1620	16100	27800	3580	3410	168	62	755	448
4	1340	1660	1410	1160	11500	18400	2150	1820	233	89	641	343
5	1290	1620	1240	958	7740	13000	1300	955	230	84	551	290
6	1190	1480	1140	853	6820	13100	870	590	174	59	502	283
7	1180	1450	1110	830	6860	14600	770	530	190	68	548	331
8	1190	1480	1040	778	5470	10200	760	542	247	89	571	327
9	1120	1340	980	744	5100	8480	675	496	207	73	543	296
10	1120	1350	980	688	4410	6890	535	351	187	67	830	536
11	1180	1470	1010	652	4120	6050	404	244	159	56	940	637
12	1160	1460	1000	605	4850	6430	288	110	143	47	840	569
13	1170	1430	880	539	4730	6360	198	59	143	46	858	563
14	1170	1400	830	509	3770	4320	181	43	137	44	703	446
15	1130	1260	922	635	2890	3780	179	39	1650	584	598	367
16	1150	1250	1420	1130	3700	5710	139	26	11900	7290	493	298
17	1230	1280	1650	1640	2720	3510	152	25	8500	5210	423	256
18	1310	1300	4720	9260	3800	5650	166	23	3200	1870	387	237
19	1200	1110	4560	7400	5520	8850	160	20	6300	8570	505	355
20	1110	923	5830	9700	5810	15500	106	11	9700	18400	510	329
21	980	767	7280	9530	5000	9260	109	5.9	15800	32400	520	371
22	874	632	8190	9110	7370	15600	120	9.1	10800	17800	895	817
23	845	593	6080	5450	8190	12800	179	33	9500	13300	1420	1330
24	734	474	4940	3630	6680	11300	146	32	14400	18600	1300	1170
25	612	370	5660	3710	5200	6810	196	53	14800	16500	1020	890
26	536	318	6200	3870	4690	4740	165	46	12700	12300	768	601
27	642	421	5000	3020	5630	4760	137	36	9300	8360	504	347
28	1240	1330	4100	2560	7160	5430	140	43	6380	5560	372	244
29	2030	2460	8100	20900	5230	4420	165	56	5480	4710	329	212
30	2380	2720	16100	54900	2550	1590	229	82	3690	2980	292	185
31	---	---	32300	83300	---	---	222	88	2120	1590	---	---
TOTAL	---	39448	---	244091	---	367540	---	15948.0	---	176971	---	14622

TOTAL LOAD FOR YEAR: 959286.0 TONS.

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)
OCT								
02...	1100	11.0	91	79	19	--	--	--
DEC								
06...	1545	.0	110	246	73	--	--	--
19...	1330	.0	130	186	65	--	--	--
JAN								
22...	1330	.0	71	239	46	--	--	--
FEB								
29...	1530	.0	106	162	46	--	--	--
MAR								
31...	1130	3.5	543	2770	4060	60	88	91
APR								
23...	1000	12.0	260	916	643	80	94	96
MAY								
21...	1200	21.0	453	7380	9030	74	95	98
JUN								
26...	1500	25.0	334	5100	4600	69	82	--
JUL								
31...	1115	24.0	144	205	80	--	--	--
AUG								
26...	0930	16.0	361	12700	12400	87	98	99

DATE	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM (70332)	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM (70333)	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM (70334)	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM (70335)	SED. SUSP. SIEVE DIAM. % FINER THAN 2.00 MM (70336)
OCT								
02...	--	--	98	--	--	--	--	--
DEC								
06...	--	--	87	--	--	--	--	--
19...	--	--	79	--	--	--	--	--
JAN								
22...	--	--	59	--	--	--	--	--
FEB								
29...	--	--	84	--	--	--	--	--
MAR								
31...	94	100	--	--	--	--	--	--
APR								
23...	96	100	--	--	--	--	--	--
MAY								
21...	99	100	98	--	--	--	--	--
JUN								
26...	--	--	82	83	86	95	98	99
JUL								
31...	--	--	93	--	--	--	--	--
AUG								
26	99	100	--	--	--	--	--	--

PERIPHYTON ANALYSIS, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	LENGTH OF EXPOSURE (DAYS) (00022)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERIPHYTON CHROMOGRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLOROPHYLL RATIO PERIPHYTON (UNITS) (70950)
APR							
23...	1000	23	3.47	3.15	.000	.000	--
JUL							
31...	1115	35	25.7	22.1	2.38	.020	1513

YELLOWSTONE RIVER BASIN

06326500 POWDER RIVER NEAR LOCATE, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO JULY 1980

DATE TIME	OCT 2,79 1100		DEC 6,79 1545		MAR 31,80 1130		MAY 21,80 1200		JUN 26,80 1500		JUL 31,80 1115	
TOTAL CELLS/ML	65000		350		860		1500		1400		90000	
DIVERSITY: DIVISION	0.9		1.5		0.7		0.0		0.0		0.4	
.CLASS	0.9		1.5		0.7		0.0		0.0		0.4	
..ORDER	1.3		1.8		1.3		0.0		0.7		0.6	
...FAMILY	1.6		3.1		1.3		2.4		1.9		0.7	
....GENUS	1.8		3.1		1.3		2.5		1.9		1.6	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-	310	0
...OOCYSTACEAE												
....ANKISTRODESMUS	4500	7	10	3	140#	17	--	-	--	-	1200	1
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	610	1
...SCENEDESMACEAE												
....ACTINASTRUM	38000#	58	--	-	--	-	--	-	--	-	2500	3
....SCENEDESMUS	600	1	71#	20	--	-	--	-	--	-	2500	3
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	300	0	--	-	--	-	--	-	--	-	--	-
..ZYGNEMATALES												
...DESMIDIACEAE												
....CLOSTERIUM	--	-	--	-	570#	67	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	6000	9	10	3	140#	17	--	-	270#	20	25000#	27
....MELOSIRA	5100	8	--	-	--	-	--	-	--	-	55000#	62
....SKELETONEMA	--	-	20	6	--	-	--	-	--	-	--	-
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	--	-	5	1	--	-	--	-	270#	20	--	-
...CYMBELLACEAE												
....CYMBELLA	--	-	5	1	--	-	110	7	--	-	--	-
....EPITHEMIA	--	-	--	-	--	-	55	4	--	-	--	-
...DIATOMACEAE												
....DIATOMA	--	-	10	3	--	-	220	15	--	-	--	-
...EUNOTIACEAE												
....EUNOTIA	--	-	15	4	--	-	--	-	--	-	--	-
...FRAGILARIACEAE												
....SYNEDRA	--	-	15	4	--	-	110	7	--	-	310	0
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	15	4	--	-	55	4	--	-	--	-
...NAVICULACEAE												
....NAVICULA	--	-	55#	16	--	-	490#	33	270#	20	310	0
...NITZSCHIACEAE												
....NITZSCHIA	11000#	16	35	10	--	-	55	4	550#	40	2100	2
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	380#	26	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..HORMOGONALES												
...OSCILLATORIACEAE												
....SCHIZOTHRIX	--	-	86#	24	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; less than 1/2%

06326507 LOCATE CREEK NEAR ISMAY, MT

LOCATION.--Lat 46°25'20", long 105°07'45", in SW¼SW¼NE¼ sec.29, T.8 N., R.53 E., Custer County, Hydrologic Unit 10090209, at U.S. Highway 12 bridge, 8.3 mi (13.3 km) east of former town of Locate, 9.0 mi (14.4 km) upstream from confluence with Powder River, 18 mi (29 km) southwest of Ismay, and 26.5 mi (43.1 km) southeast of Terry .

DRAINAGE AREA.--62.52 mi^2 (161.9 km^2).

PERIOD OF RECORD.--October 1979 to September 1980.

REMARKS.--Flow not present during station visits.

YELLOWSTONE RIVER BASIN

06326520 POWDER RIVER AT MOUTH, NEAR TERRY, MT

LOCATION.--Lat 46°44'13", long 105°25'42", in NE¼NE¼SE¼ sec.4, T.11 N., R.50 E., Custer County, Hydrologic Unit 10090209, at bridge on old U.S. Highway 10, 0.5 mi (0.8 km) above confluence with Yellowstone River and 6 mi (10 km) southwest of Terry.

DRAINAGE AREA.--13,512 mi^2 (34,996 km^2).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1979 to September 1980.

INSTRUMENTATION.--Temperature recorder Oct. 17, 1979 to September 1980.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 31.5°C July 22, 23; minimum, 0.0°C on many days during November to March.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	1.5	.0	.5	.0	.0	.0	.0	.0	.0
2	---	---	---	4.0	.0	1.5	.0	.0	.0	.0	.0	.0
3	---	---	---	1.5	.0	.5	.0	.0	.0	.0	.0	.0
4	---	---	---	3.5	.5	1.5	.0	.0	.0	.0	.0	.0
5	---	---	---	3.5	.0	1.5	.0	.0	.0	.0	.0	.0
6	---	---	---	.5	.0	.0	.0	.0	.0	.0	.0	.0
7	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
8	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	---	---	---	.5	.0	.0	.0	.0	.0	.0	.0	.0
13	---	---	---	.5	.0	.0	.0	.0	.0	.0	.0	.0
14	---	---	---	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	---	---	---	2.0	.0	.5	.0	.0	.0	.0	.0	.0
16	---	---	---	3.0	.0	1.0	.0	.0	.0	.0	.0	.0
17	13.0	---	---	2.5	.0	1.5	.0	.0	.0	.0	.0	.0
18	13.5	8.0	10.5	3.5	.5	2.0	.0	.0	.0	.0	.0	.0
19	14.0	8.5	10.5	1.0	.0	.5	.0	.0	.0	.0	.0	.0
20	10.0	5.5	7.5	1.0	.0	.0	.0	.0	.0	.0	.0	.0
21	8.5	5.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	9.5	3.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	10.5	4.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	12.0	6.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	11.5	7.5	9.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
26	10.0	7.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
27	10.5	5.0	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	10.0	6.0	7.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	9.5	5.5	7.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	7.5	3.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	5.0	1.0	3.0	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	14.0	1.0	7.5	4.0	.0	.5	.0	.0	.0	.0	.0	.0

06326520 POWDER RIVER AT MOUTH, NEAR TERRY, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN FEBRUARY	MEAN	MAX	MIN MARCH	MEAN	MAX	MIN APRIL	MEAN	MAX	MIN MAY	MEAN
1	.0	.0	.0	.0	.0	.0	6.0	3.5	4.5	19.5	14.0	16.5
2	.0	.0	.0	.0	.0	.0	7.5	3.5	5.5	20.5	13.5	17.0
3	.0	.0	.0	.0	.0	.0	7.5	3.5	5.5	21.0	14.5	17.5
4	.0	.0	.0	.0	.0	.0	10.5	3.5	7.0	22.0	15.5	18.0
5	.0	.0	.0	.0	.0	.0	10.5	5.0	8.0	22.0	13.5	17.5
6	.0	.0	.0	.0	.0	.0	8.5	6.5	7.5	20.0	13.0	16.0
7	.0	.0	.0	.0	.0	.0	6.0	4.0	5.0	18.5	9.5	13.5
8	.0	.0	.0	.0	.0	.0	9.0	2.5	5.5	17.5	8.5	13.0
9	.0	.0	.0	.0	.0	.0	11.0	3.0	7.0	15.5	11.5	13.0
10	.0	.0	.0	.0	.0	.0	8.5	6.5	7.5	16.5	10.0	13.0
11	.0	.0	.0	.0	.0	.0	10.5	4.5	7.5	19.0	9.0	13.5
12	.0	.0	.0	.0	.0	.0	10.5	6.0	8.0	19.0	10.0	14.5
13	.0	.0	.0	.0	.0	.0	13.5	5.5	9.5	19.0	10.5	14.5
14	.0	.0	.0	.0	.0	.0	15.0	7.0	11.0	20.5	9.5	14.5
15	.0	.0	.0	.0	.0	.0	14.5	9.5	11.5	19.0	10.5	15.0
16	.0	.0	.0	.0	.0	.0	14.5	8.5	11.5	15.5	13.0	14.5
17	.0	.0	.0	.0	.0	.0	17.0	8.0	12.5	21.5	11.5	16.0
18	.0	.0	.0	.0	.0	.0	18.0	10.0	13.5	21.5	13.0	17.5
19	.0	.0	.0	.0	.0	.0	18.5	11.0	15.0	20.5	15.0	18.0
20	.0	.0	.0	.0	.0	.0	21.0	12.5	16.5	22.0	16.5	19.5
21	.0	.0	.0	.0	.0	.0	21.0	13.5	17.0	25.0	17.5	21.0
22	.0	.0	.0	.0	.0	.0	16.5	11.5	14.0	---	19.0	---
23	.0	.0	.0	.5	.0	.0	16.5	9.0	12.5	---	---	---
24	.0	.0	.0	.5	.0	.0	17.5	8.5	13.0	---	---	---
25	.0	.0	.0	.5	.0	.0	18.5	9.0	13.5	---	---	---
26	.0	.0	.0	.5	.0	.0	19.0	10.0	14.0	---	---	---
27	.0	.0	.0	.5	.0	.0	20.0	10.5	15.0	---	---	---
28	.0	.0	.0	4.5	.0	2.0	20.5	11.0	15.5	---	---	---
29	.0	.0	.0	7.0	1.0	4.0	20.0	13.0	16.0	---	---	---
30	---	---	---	8.0	2.5	5.5	20.0	12.0	16.0	---	---	---
31	---	---	---	5.5	4.0	5.0	---	---	---	---	---	---
MONTH	.0	.0	.0	8.0	.0	.5	21.0	2.5	11.0	25.0	8.5	16.0

		JUNE			JULY			AUGUST			SEPTEMBER	
1	---	---	---	27.0	16.5	21.5	---	---	---	21.0	13.5	17.0
2	---	---	---	27.0	19.0	23.0	---	---	---	20.0	14.0	17.0
3	---	---	---	26.0	21.0	23.0	---	---	---	18.0	13.5	16.0
4	---	---	---	26.5	18.5	22.5	---	---	---	19.5	11.0	15.5
5	---	---	---	23.0	20.0	21.5	---	---	---	22.5	13.0	17.5
6	---	---	---	20.5	19.5	20.0	---	---	---	24.0	14.5	19.0
7	---	---	---	20.0	19.5	19.5	---	---	---	22.5	16.5	19.5
8	---	---	---	24.0	19.0	20.5	---	---	---	18.5	13.0	15.5
9	---	---	---	27.0	20.0	23.0	---	---	---	19.0	10.0	14.5
10	---	---	---	30.0	19.5	24.5	---	---	---	21.0	12.5	16.5
11	---	---	---	25.5	17.5	21.5	---	---	---	20.5	16.0	18.0
12	---	---	---	23.5	18.0	20.5	---	---	---	17.5	15.0	16.5
13	---	---	---	28.0	18.0	22.0	---	---	---	17.5	13.5	15.0
14	---	---	---	26.5	17.0	21.5	---	---	---	21.0	13.0	16.5
15	---	---	---	24.5	18.5	21.0	---	---	---	17.5	10.0	13.5
16	---	---	---	23.5	16.5	20.0	---	---	---	16.0	8.5	12.0
17	---	---	---	21.5	18.0	19.5	---	---	---	15.5	13.0	14.0
18	---	---	---	28.5	15.0	21.0	26.0	17.5	21.5	17.5	11.5	14.0
19	---	---	---	29.0	17.0	21.5	24.0	17.0	20.5	18.5	13.0	15.5
20	---	---	---	23.0	15.0	18.5	20.0	17.0	18.5	18.0	11.5	15.0
21	---	---	---	30.0	14.0	21.5	21.5	15.5	18.5	15.5	11.5	14.0
22	---	---	---	31.5	16.0	23.0	---	---	---	15.0	9.0	12.0
23	---	---	---	31.5	18.0	23.5	---	---	---	16.0	11.5	13.5
24	---	---	---	25.0	18.5	21.0	---	---	---	12.5	10.0	11.5
25	---	---	---	23.0	17.5	20.5	---	---	---	14.5	7.5	11.0
26	---	---	---	28.5	17.0	22.0	---	---	---	15.5	8.5	12.0
27	17.5	---	---	27.5	18.0	22.5	---	---	---	17.5	9.5	13.5
28	19.0	11.5	15.5	25.0	17.0	21.5	---	---	---	18.5	11.0	14.5
29	25.0	14.5	19.5	22.5	20.5	21.0	19.5	16.0	17.5	18.0	12.5	15.0
30	22.0	18.0	20.0	21.5	19.0	20.0	20.0	13.0	16.5	16.5	11.5	13.5
31	---	---	---	---	---	---	20.5	14.5	17.0	---	---	---
MONTH	25.0	11.5	18.5	31.5	14.0	21.5	26.0	13.0	18.5	24.0	7.5	15.0
YEAR	31.5	.0	7.0									

06326530 YELLOWSTONE RIVER NEAR TERRY, MT

LOCATION.--Lat 46°48'17", long 105°17'36", in SW¼SW¼ sec.10, T.12 N., R.51 E., Prairie County, Hydrologic Unit 10100004, at bridge on county road, 1.2 mi (1.9 km) northeast of Terry, 11.8 mi (19.0 km) downstream from Powder River, and at mile 134.8 (219.9 km).

DRAINAGE AREA.--63,447 mi² (164,328 km²).

PERIOD OF RECORD.--Water years 1974 to current year.

REMARKS.--The water discharge is measured or computed by adding the discharge of Yellowstone River at Miles City (station 06309000) to that of Powder River near Locate (station 06326500). Some regulation by reservoirs on tributary streams and diversions for irrigation.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT 17...	1400	6400	1	782	8.8	16.0	12.5	9.9	100	270	110
NOV 28...	1500	6700	1	812	8.6	-6.0	.0	13.5	96	310	120
JAN 04...	1415	7400	3	962	8.5	-3.5	.5	13.2	99	320	130
24...	1230	7100	53	878	8.3	3.5	.0	11.6	86	280	160
MAR 29...	1430	8400	0	990	8.4	14.5	7.0	10.6	95	310	130
APR 24...	1000	12500	0	850	8.4	19.0	13.5	8.5	88	270	110
MAY 22...	0930	14000	0	485	8.5	24.0	20.0	7.4	88	150	55
JUN 27...	1200	28600	54	338	8.3	17.0	19.0	7.5	87	110	24
AUG 01...	0930	8200	3	670	8.7	24.0	23.0	7.6	96	220	69
28...	1430	6900	0	890	8.5	30.0	23.0	9.0	122	270	100
SEP 30...	1100	11100	3	650	8.5	24.0	15.0	8.9	95	220	80

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 17...	63	28	77	2.0	4.7	160	250	15	.5	7.3	542
NOV 28...	74	31	77	1.9	4.4	190	270	16	.5	10	597
JAN 04...	75	31	96	2.4	4.1	190	320	20	.5	9.8	671
24...	67	28	81	2.1	4.3	120	280	20	.5	12	565
MAR 29...	73	30	96	2.4	4.8	180	320	21	.6	8.8	662
APR 24...	66	25	67	1.8	4.3	160	230	13	.4	11	513
MAY 22...	36	14	42	1.5	2.9	95	110	9.5	.3	12	284
JUN 27...	27	9.4	24	1.0	2.0	86	73	3.5	.3	10	201
AUG 01...	53	21	65	1.9	4.3	150	180	9.6	.7	9.1	433
28...	65	25	69	1.8	4.6	170	220	13	.5	15	514
SEP 30...	55	20	56	1.6	3.8	140	190	10	.6	9.8	429

06326530 YELLOWSTONE RIVER NEAR TERRY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT											
17...	.74	9370	.09	.00	.51	.51	.04	4.5	.4	180	< 10
NOV											
28...	.81	10800	.32	.05	.45	.50	.01	--	--	190	< 10
JAN											
04...	.91	13400	.46	.02	1.1	1.1	.09	--	--	190	20
24...	.77	10800	.54	.05	.86	.91	.01	5.5	.1	190	< 10
MAR											
29...	.90	15000	.28	.04	.82	.86	.28	--	--	180	10
APR											
24...	.70	17300	.41	.12	.98	1.1	.23	11	--	210	10
MAY											
22...	.39	10700	.19	.18	2.2	2.4	.30	--	--	90	< 10
JUN											
27...	.27	15500	.13	.04	1.2	1.2	.46	2.7	--	100	10
AUG											
01...	.59	9560	.03	.03	.89	.92	.05	7.0	--	180	10
28...	.69	9430	.01	.00	1.2	1.2	.28	--	--	140	3100
SEP											
30...	.58	12900	.00	.00	.78	.78	.06	--	--	150	< 10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
JUN								
27...	1200	6	6	0	< 1	1	2	0

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
JUN								
27...	0	13	3	4500	12	0	130	2

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUN								
27...	.0	.0	14	1	1	1	40	3

06326530 YELLOWSTONE RIVER NEAR TERRY, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER- ATURE, WATER (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
17...	1400	12.5	6400	42	726	90
NOV						
28...	1500	.0	6700	17	308	--
JAN						
04...	1415	.5	7400	33	659	--
24...	1230	.0	7100	20	383	--
MAR						
29...	1430	7.0	8400	485	11000	91
APR						
24...	1000	13.5	12500	349	11800	74
MAY						
22...	0930	20.0	14000	674	25500	--
JUN						
27...	1200	19.0	28600	324	25000	60
AUG						
01...	0930	23.0	8200	55	1220	93
28...	1430	23.0	6900	486	9050	99
SEP						
30...	1100	15.0	11100	63	1890	86

PERIPHYTON ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	LENGTH OF EXPO- SURE (DAYS) (00022)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO- PHYLL RATIO PERI- PHYTON (UNITS) (70950)
MAY							
22...	0930	28	.630	.472	.960	.230	165

06326555 CHERRY CREEK NEAR TERRY, MT

LOCATION.--Lat 46°51'00", long 105°19'27", in NE¼SE¼SE¼ sec.25, T.13 N., R.50 E., Prairie County, Hydrologic Unit 10100004, on right bank, upstream side of State Highway 253 bridge, 0.4 mi (0.6 km) upstream from Dry Creek, and 4.0 mi (6.4 km) north of Terry.

DRAINAGE AREA.--358 mi^2 (927 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to September 1979 (discharge measurements only), October 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,300.91 ft (701.317 m) National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Water-discharge records poor. No known diversions for irrigation above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, not determined, but occurred on June 13, 1980, gage height, 7.35 ft (2.240 m); no flow occurs sometime most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, not determined, but occurred on June 13, gage height, 7.35 ft (2.240 m); no flow most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.25	.06	.00	.18	.00	.01
2	.00	.00	.00	.00	.00	.00	.25	.06	.00	.18	.00	.00
3	.00	.00	.00	.00	.00	.00	.20	.06	.00	.14	.00	.00
4	.00	.00	.00	.00	.00	.00	.20	.05	.00	.14	.00	.00
5	.00	.00	.00	.00	.00	.00	.25	.06	.00	.14	.00	.00
6	.00	.00	.00	.00	.00	.00	.25	.07	.00	.14	.00	.00
7	.00	.00	.00	.00	.00	.00	.30	.06	.00	.14	.00	.00
8	.00	.00	.00	.00	.00	.00	.35	.07	.00	.14	.00	.00
9	.00	.00	.00	.00	.00	.00	.40	.06	.00	.14	.00	.00
10	.00	.00	.00	.00	.00	.00	.60	.06	.00	.14	.00	.00
11	.00	.00	.00	.00	.00	.01	.40	.06	.00	.07	.00	.00
12	.00	.00	.00	.00	.00	.01	.30	.06	.01	.06	.00	.00
13	.00	.00	.00	.00	.00	.10	.30	.06	451	.03	.00	.00
14	.00	.00	.00	.00	.00	.40	.25	.06	89	.03	.00	.00
15	.00	.00	.00	.00	.00	.30	.45	.05	26	.00	2.1	.00
16	.00	.00	.00	.00	.00	.20	.20	.05	26	.00	7.6	.00
17	.00	.00	.00	.00	.00	.25	.10	.05	16	.00	2.8	.00
18	.00	.00	.00	.00	.00	.30	.08	.04	8.9	.00	.63	.00
19	.00	.00	.00	.00	.00	.35	.08	.04	7.6	.00	.28	.00
20	.00	.00	.00	.00	.00	.25	.08	.04	4.9	.00	.13	.00
21	.00	.00	.00	.00	.00	.30	.08	.04	3.2	.00	.05	.00
22	.00	.00	.00	.00	.00	.30	.08	.03	2.5	.00	.03	.00
23	.00	.00	.00	.00	.00	.50	.08	.03	1.5	.00	.02	.00
24	.00	.00	.00	.00	.00	.35	.08	.03	.87	.00	.01	.00
25	.00	.00	.00	.00	.00	.35	.07	.03	.75	.00	.00	.00
26	.00	.00	.00	.00	.00	.30	.07	.02	.63	.00	.00	.00
27	.00	.00	.00	.00	.00	.35	.07	.01	.28	.00	.00	.00
28	.00	.00	.00	.00	.00	.25	.07	.00	.18	.00	.00	.00
29	.00	.00	.00	.00	.00	.25	.07	.00	.23	.00	.00	.00
30	.00	.00	.00	.00	---	.25	.07	.00	.18	.00	.00	.00
31	.00	---	.00	.00	---	.20	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	5.57	6.03	1.31	639.73	1.67	13.65	.01
MEAN	.000	.000	.000	.000	.000	.18	.20	.042	21.3	.054	.44	.000
MAX	.00	.00	.00	.00	.00	.50	.60	.07	451	.18	7.6	.01
MIN	.00	.00	.00	.00	.00	.00	.07	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	11	12	2.6	1270	3.3	27	.02

WTR YR 1980 TOTAL 667.97 MEAN 1.83 MAX 451 MIN .00 AC-FT 1320

06326555 CHERRY CREEK NEAR TERRY, MT

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
JAN 04...	1045	E.05	3	3200	7.9	-4.0	3.0	10.2	82	840	460	140
24...	1100	E.04	51	2870	8.4	3.0	1.0	11.3	87	670	350	110
MAR 29...	1300	.26	0	2700	8.1	14.0	6.0	10.1	88	640	330	110
APR 24...	1400	.08	0	3230	8.2	20.0	17.0	7.9	88	690	310	120
MAY 22...	1220	.05	0	3400	8.2	32.0	24.0	6.3	82	700	320	120
JUN 13...	1900	177	1	490	8.3	17.0	17.5	6.2	70	110	47	25

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
JAN 04...	120	500	7.5	8.0	380	1500	13	.3	--	--	10	2520
24...	96	520	8.7	11	320	1400	17	.3	.1	.00	10	2360
MAR 29...	88	420	7.2	7.7	310	1200	8.6	.3	--	--	7.4	2030
APR 24...	94	440	7.3	9.9	380	1300	11	.4	.1	.00	11	2220
MAY 22...	97	540	8.9	11	380	1500	10	.5	.1	.66	13	2520
JUN 13...	11	49	2.1	7.1	61	160	5.8	.5	.0	.00	4.0	299

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
JAN 04...	3.43	E.34	.06	.02	.97	.99	.02	--	--	180	10
24...	3.21	E.25	.25	.01	1.2	1.2	.01	14	.3	190	20
MAR 29...	2.76	1.43	.10	.03	.33	.36	.01	--	--	150	40
APR 24...	3.02	.48	.02	.01	.44	.45	.01	10	--	270	50
MAY 22...	3.43	.34	.00	.04	.29	.33	.02	7.5	.4	310	20
JUN 13...	.41	143	.51	.14	8.0	8.1	.97	16	--	200	70

06326555 CHERRY CREEK NEAR TERRY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
MAY								
22...	1220	2	1	0	0	0	1	0
JUN								
13...	1900	17	3	0	< 3	0	1	50

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
MAY								
22...	0	5	3	210	1	2	30	30
JUN								
13...	0	80	9	62000	60	6	1200	30

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAY								
22...	.1	.0	22	0	1	1	20	10
JUN								
13...	.1	.1	53	7	2	1	230	9

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)
JAN								
04...	1045	3.0	E.05	28	.00	--	--	--
24...	1100	1.0	E.04	28	.00	--	--	--
MAR								
29...	1300	6.0	.26	6	.00	--	--	--
APR								
24...	1400	17.0	.08	35	.01	--	--	--
MAY								
22...	1220	24.0	.05	20	.00	--	--	--
JUN								
13...	1900	17.5	177	2730	1300	87	99	100

06326600 O'FALLON CREEK NEAR ISMAY, MT

LOCATION.--Lat 46°25'17", long 104°45'40", in NE¼SE¼ sec. 30, T.8 N., R.56 E., Fallon County, Hydrologic Unit 10100005, on left bank, about 350 ft (107 m) upstream of U.S. Highway 12, 1 mi (2 km) east of road to Ismay, 6.5 mi (10.5 km) southeast of Ismay, and 11.5 mi (18.5 km) west of Plevna, and at mile 58.3 (93.8 km).

DRAINAGE AREA.--669 mi^2 (1,733 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year. Crest-stage partial-record data collected May 1973 to September 1977.

GAGE.--Water-stage recorder and crest-stage gages. Altitude of gage is 2,590 ft (789 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,100 ft^3/s (87.8 m^3/s) Mar. 22, 1978, gage height, 9.35 ft (2.850 m); no flow Sept. 29, 30, 1979, and on many days in 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge 1963-77, 4,700 ft^3/s (133 m^3/s) July 3, 1976, extension of crest-stage gage rating above 3,860 ft^3/s (109 m^3/s)

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 32 ft^3/s (0.91 m^3/s) Aug. 17, gage height, 2.02 ft (0.616 m); maximum gage height, 2.55 ft (0.777 m) Feb. 27 (backwater from ice); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.06	.78	.50	.02	.14	10	1.4	.10	.00	.00	.00
2	.00	.05	.82	.47	.03	.12	8.9	1.4	.11	.00	.00	.00
3	.00	.04	.85	.42	.03	.10	8.5	1.2	.09	.00	.00	.00
4	.00	.05	.93	.36	.03	.07	10	1.3	.08	.00	.00	.00
5	.00	.06	1.1	.30	.03	.05	9.3	1.1	.08	.00	.00	.00
6	.00	.08	1.4	.24	.03	.04	7.1	1.0	.08	.00	.00	.00
7	.00	.10	1.3	.15	.03	.10	5.9	.76	.08	.00	.00	.00
8	.00	.12	1.2	.05	.03	.17	5.2	.76	.04	.00	.00	.00
9	.00	.15	1.3	.03	.02	.25	4.8	.76	.04	.00	.00	.00
10	.00	.19	1.2	.03	.02	.29	4.5	.62	.04	.00	.00	.00
11	.00	.22	1.1	.04	.01	.36	5.2	.45	.04	.00	.00	.00
12	.00	.21	1.2	.04	.01	.52	5.2	.44	.00	.00	.00	.00
13	.00	.26	1.2	.05	.00	.96	4.8	.44	.04	.00	.00	.00
14	.00	.28	1.2	.05	.00	1.2	4.5	.37	.00	.00	.00	.00
15	.00	.34	1.1	.06	.00	1.4	4.1	.38	.03	.00	.02	.00
16	.00	.62	.80	.05	.00	2.0	4.5	.37	.00	.00	11	.00
17	.00	.98	.90	.04	.01	2.8	4.6	.37	.00	.00	27	.00
18	.00	.90	1.0	.04	.02	3.5	4.1	.30	.00	.00	7.0	.02
19	.00	.85	1.1	.04	.02	4.7	4.1	.30	.00	.00	1.3	.04
20	.00	.80	1.0	.04	.02	5.4	3.6	.30	12	.00	.37	.04
21	.00	.76	.98	.04	.02	6.0	3.4	.26	16	.00	.19	.08
22	.00	.73	.95	.04	.02	6.8	2.7	.26	8.9	.00	.04	.08
23	.00	.70	.85	.04	.02	7.5	2.6	.19	4.1	.00	.00	.05
24	.00	.72	.85	.04	.03	8.2	2.7	.12	1.9	.00	.00	.04
25	.00	.78	.82	.04	.06	8.8	2.5	.13	1.1	.00	.00	.04
26	.00	.82	.80	.02	.10	9.5	2.3	.18	.44	.00	.00	.04
27	.00	.75	.77	.01	.20	11	2.3	.19	.22	.00	.50	.04
28	.00	.70	.73	.00	.18	12	2.1	.19	.13	.00	.04	.07
29	.00	.71	.68	.00	.16	12	2.0	.15	.07	.00	.00	.07
30	.00	.74	.62	.00	---	11	1.6	.15	.00	.00	.00	.02
31	.02	---	.55	.01	---	10	---	.15	---	.00	.00	---
TOTAL	.02	13.77	30.08	3.24	1.15	126.97	143.1	15.99	45.71	.00	47.46	.63
MEAN	.001	.46	.97	.10	.040	4.10	4.77	.52	1.52	.000	1.53	.021
MAX	.02	.98	1.4	.50	.20	12	10	1.4	16	.00	27	.08
MIN	.00	.04	.55	.00	.00	.04	1.6	.12	.00	.00	.00	.00
AC-FT	.04	27	60	6.4	2.3	252	284	32	91	.00	94	1.2

CAL YR 1979 TOTAL 6596.14 MEAN 18.1 MAX 250 MIN .00 AC-FT 13080
WTR YR 1980 TOTAL 428.12 MEAN 1.17 MAX 27 MIN .00 AC-FT 849

06326600 O'FALLON CREEK NEAR ISMAY, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 31...	1515	.05	4010	8.8	4.0	6.0	10.5	92	73	400
NOV 16...	1045	.61	3930	8.0	15.0	3.0	10.4	85	K19	190
DEC 14...	0950	1.2	4480	8.4	3.0	.0	12.0	90	K2	53
JAN 15...	1000	.06	5580	8.1	-.5	.0	9.0	69	K8	640
MAR 18...	1250	3.7	3530	8.5	13.0	.0	11.2	85	29	1200
APR 15...	1250	4.3	2570	8.6	15.5	11.5	10.5	105	190	61
MAY 07...	1200	.71	3410	8.5	11.5	16.5	9.0	99	360	280
JUN 11...	0955	.03	3800	8.7	27.5	22.5	8.8	116	K1300	K2200
AUG 18...	1235	5.7	2880	8.6	28.0	23.0	7.0	90	720	1300

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT 31...	460	0	46	84	860	17	11	650	38	590
NOV 16...	520	0	81	78	760	14	12	730	0	600
DEC 14...	550	0	57	100	950	18	10	1010	10	850
JAN 15...	710	0	102	110	1200	23	14	1130	0	930
MAR 18...	450	0	55	75	800	19	9.6	710	36	640
APR 15...	300	0	40	48	500	15	6.7	490	16	430
MAY 07...	440	0	55	74	690	14	10	650	26	580
JUN 11...	420	0	40	78	820	21	12	650	34	590
AUG 18...	270	0	41	40	570	15	10	430	12	380

DATE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT 31...	1.8	1600	16	.6	2.3	2970	2980	4.04	.40	.03
NOV 16...	12	1600	14	.6	9.1	2960	2920	4.03	4.88	.06
DEC 14...	6.6	1700	14	.8	7.9	3340	3350	4.54	10.8	.06
JAN 15...	14	2800	16	.4	13	4390	4820	5.97	.71	.03
MAR 18...	4.0	1300	13	.7	8.0	2580	2650	3.51	25.8	.03
APR 15...	2.1	950	6.4	.5	4.0	1800	1810	2.45	20.9	.04
MAY 07...	3.6	1300	10	.7	6.9	2590	2490	3.52	4.97	.02
JUN 11...	2.3	1600	12	.3	5.6	2870	2920	3.90	.23	.00
AUG 18...	1.8	1100	13	.7	4.6	2010	2010	2.73	30.9	.80

06326600 O'FALLON CREEK NEAR ISMAY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 31...	.03	.03	.77	.80	.01	.01	14	.1	670	10
NOV 16...	.08	.03	.63	.66	.01	.01	21	--	500	20
DEC 14...	.06	.02	.98	1.0	.02	.01	23	.5	870	50
JAN 15...	.03	.00	1.2	1.2	.02	.02	34	.4	870	12
MAR 18...	--	.00	1.0	1.0	.00	.04	31	.7	620	35
APR 15...	.02	.00	.97	.97	.07	.03	11	.7	470	43
MAY 07...	.02	.03	.80	.83	.04	.01	12	.7	760	20
JUN 11...	.03	.01	.25	.26	.03	.01	15	1.4	790	66
AUG 18...	.78	.07	1.7	1.8	.15	.01	36	.9	600	70

DATE	TIME	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
JAN 15...	1000	0	--	1	--	50	--	< 1	--	< 1	--
MAR 18...	1250	0	2	1	100	30	0	< 3	1	10	10
APR 15...	1250	20	--	1	--	20	--	< 3	--	< 3	--
JUN 11...	0955	40	2	2	0	20	0	< 3	0	< 3	0

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
JAN 15...	0	--	< 3	--	< 10	--	54	--	91	--	210
MAR 18...	0	0	< 8	6	< 25	2	< 100	60	63	110	88
APR 15...	0	--	< 8	--	< 25	--	< 25	--	38	--	9
JUN 11...	0	1	< 8	7	< 25	34	< 25	70	63	70	16

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, TOTAL RECOV-ERABLE (UG/L AS MO) (01062)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JAN 15...	--	.1	--	< 10	--	3	--	1	1600	< 6.0	--	< 3
MAR 18...	.0	.3	4	< 25	7	4	1	1	1100	< 8.0	30	16
APR 15...	--	.0	--	< 25	--	5	--	1	730	< 8.0	--	33
JUN 11...	.5	.3	4	< 25	11	5	0	0	940	< 8.0	50	10

06326600 O'FALLON CREEK NEAR ISMAY, MT--Continued

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
MAR									
18...	1250	< 43	< 29	1.1	.7	< 17	2.8	< 18	2.9
JUN									
11...	0955	65	44	< 1.1	< .7	< 17	2.2	< 16	2.1

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
31...	1515	6.0	.05	42	.01
NOV					
16...	1045	3.0	.61	161	.27
DEC					
14...	0950	.0	1.2	39	.13
JAN					
15...	1000	.0	.06	150	.02
MAR					
13...	1730	.0	.79	45	.10
18...	1250	.0	3.7	162	1.6
APR					
15...	1250	11.5	4.3	35	.41
MAY					
07...	1200	16.5	.71	77	.15
JUN					
11...	0955	22.5	.03	75	.01
AUG					
18...	1235	23.0	5.7	160	2.5
22...	1325	17.0	.04	113	.01

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
JAN												
15...	1000	5	9	12	12	13	16	24	38	45	69	100
MAR												
18...	1250	8	17	34	39	43	50	66	84	94	98	100
JUN												
11...	0955	2	3	6	9	13	19	33	49	56	71	100

PERIPHYTON ANAYLSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
MAY							
07...	1200	22	1.97	1.58	.360	.100	1083

06326600 O'FALLON CREEK NEAR ISMAY, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO JANUARY 1980

DATE	OCT 31,79	NOV 16,79	DEC 14,79	JAN 15,80
TIME	1515	1045	0950	1000
TOTAL CELLS/ML	3500	150	1400	1700
DIVERSITY: DIVISION	1.0	1.0	0.7	1.5
.CLASS	1.0	1.0	0.7	1.5
..ORDER	1.0	1.0	0.7	1.9
...FAMILY	1.2	1.8	0.7	2.3
....GENUS	1.9	2.0	0.7	2.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHLOROCOCCACEAE								
....CHLOROCOCCUM	--	-	--	-	--	-	46	3
...OOCYSTACEAE								
....ANKISTRODESMUS	1100#	32	81#	53	220#	16	290#	17
....CHLORELLA	--	-	5	3	--	-	--	-
....CHODATELLA	15	0	--	-	--	-	--	-
....DICTYOSPHAERIUM	180	5	--	-	--	-	--	-
....FRANCEIA	15	0	--	-	--	-	--	-
....KIRCHNERIELLA	44	1	--	-	--	-	--	-
....NEPHROCYTIUM	74	2	--	-	--	-	--	-
....TREUBARIA	15	0	--	-	--	-	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	120	3	--	-	--	-	--	-
....SCENEDESMUS	29	1	20	13	--	-	120	7
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	--	-	76	4
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	--	-	--	-	120	7
..PENNALES								
...NAVICULACEAE								
....NAVICULA	--	-	15	10	--	-	30	2
...NITZSCHIACEAE								
....NITZSCHIA	15	0	25#	17	--	-	110	6
...SURIRELLACEAE								
....SURIRELLA	--	-	--	-	12	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	88	3	--	-	--	-	--	-
....ANACYSTIS	1800#	51	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	--	-	1200#	83	880#	52
...PETALOMONADACEAE								
....CALYCOMONAS	--	-	5	3	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..GYMNODINIALES								
...GYMNODINIACEAE								
....GYMNODINIUM	--	-	--	-	--	-	30	2

06326600 O'FALLON CREEK NEAR ISMAY, MT--Continued

PHYTOPLANKTON ANALYSES, MARCH 1980 TO AUGUST 1980

DATE	MAR 18,80		APR 15,80		MAY 7,80		JUN 11,80		AUG 18,80	
TIME	1250		1250		1200		0955		1235	
TOTAL CELLS/ML	30000		6300		3500		1000		9500	
DIVERSITY: DIVISION	0.3		1.0		1.0		1.8		1.5	
.CLASS	0.3		1.0		1.1		1.8		1.5	
..ORDER	0.3		1.1		1.3		2.1		1.6	
...FAMILY	0.3		1.2		1.7		2.6		2.4	
....GENUS	0.3		1.6		2.6		3.1		2.9	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...HYDRODICTYACEAE										
....PEDIASTRUM	--	-	--	-	--	-	--	-	49	1
...OOCYSTACEAE										
....ANKISTRODESMUS	430	1	--	-	1800#	51	310#	31	790	8
....CHLORELLA	--	-	--	-	--	-	13	1	--	-
....CHODATELLA	--	-	--	-	--	-	13	1	--	-
....DICTYOSPHAERIUM	--	-	--	-	110	3	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	27	1	--	-	200	2
....NEPHROCYTIUM	--	-	--	-	54	2	--	-	--	-
....OOCYSTIS	--	-	210	3	270	8	13	1	99	1
....TETRAEDRON	--	-	--	-	27	1	39	4	--	-
....TREUBARIA	--	-	--	-	27	1	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	110	3	100	10	200	2
....SCENEDESMUS	--	-	--	-	160	5	--	-	400	4
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	92	0	110	2	110	3	13	1	--	-
..ZYGNEMATALES										
...ZYGNEMATACEAE										
....MOUGEOTIA	--	-	--	-	--	-	--	-	49	1
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	120	0	160	2	27	1	26	3	49	1
....MELOSIRA	--	-	--	-	--	-	180#	18	--	-
..PENNALES										
...ACHNANTHACEAE										
....COCCONEIS	--	-	--	-	--	-	--	-	150	2
...CYMBELLACEAE										
....CYMBELLA	--	-	--	-	--	-	--	-	49	1
...DIATOMACEAE										
....DIATOMA	120	0	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....ASTERIONELLA	--	-	160	2	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	39	4	--	-
...NAVICULACEAE										
....DIPLONEIS	--	-	--	-	27	1	--	-	49	1
....NAVICULA	--	-	--	-	--	-	26	3	99	1
...NITZSCHIACEAE										
....NITZSCHIA	120	0	160	2	27	1	13	1	3300#	34
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...CHROMULINACEAE										
....CHRYSOCOCCUS	--	-	--	-	320	9	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	580	9	400	12	140	14	--	-
....DACTYLOCOCCOPSIS	--	-	4500#	71	--	-	--	-	--	-
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENOPSIS	--	-	--	-	--	-	--	-	1500#	16
....APHANIZOMENON	--	-	--	-	--	-	--	-	1100	12
...OSCILLATORIACEAE										
....OSCILLATORIA	29000#	96	--	-	--	-	--	-	1400	15
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	53	1	--	-	26	3	--	-
....TRACHELOMONAS	180	1	420	7	--	-	13	1	49	1
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	--	-	--	-	--	-	39	4	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06326953 CLEAR CREEK NEAR HOYT, MT

LOCATION.--Lat 47°00'05", long 104°56'31", on common line between sec.1, T.14 N., R.53 E., and sec.6, T.14 N., R.24 E., Dawson County, Hydrologic Unit 10100004, at county road 6.5 mi (10.5 km) northwest of Hoyt.

DRAINAGE AREA.--38.1 mi^2 (98.7 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
FEB 04...	1135	.12	1320	7.9	4.5	1.0	10.4	79	160	--
MAR 19...	1345	1.3	1380	8.1	8.0	6.5	11.9	106	38	2400
APR 10...	1055	1.4	1510	8.0	16.0	6.0	10.7	95	K2	K11
MAY 08...	1230	.24	1350	8.1	17.0	11.5	9.9	96	K1	1500
JUN 14...	1220	2.7	1380	8.1	25.0	21.0	6.7	82	K5000	K12000
AUG 19...	1030	.39	1460	8.2	20.0	18.5	8.6	100	170	430

DATE	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)
FEB 04...	470	110	72	71	93	1.9	4.9	440	0	360
MAR 19...	560	230	84	85	110	2.3	5.1	400	0	330
APR 10...	570	220	82	88	120	2.2	5.3	430	0	350
MAY 08...	550	180	84	82	110	2.4	5.8	450	0	370
JUN 14...	540	220	82	82	120	2.6	7.5	390	0	320
AUG 19...	560	170	85	84	120	2.2	7.6	470	0	380

DATE	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
FEB 04...	8.9	340	6.0	.3	11	827	815	1.12	.27	.02
MAR 19...	5.1	460	7.4	.2	10	984	960	1.34	3.45	.03
APR 10...	6.9	490	8.2	.3	9.8	1030	1020	1.40	4.00	.00
MAY 08...	5.7	410	6.6	.4	13	930	935	1.26	.60	.01
JUN 14...	5.0	490	7.2	.2	15	1030	998	1.40	7.51	.15
AUG 19...	4.7	470	7.7	.4	15	1010	1020	1.37	1.06	.00

06326953 CLEAR CREEK NEAR HOYT, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
FEB										
04...	.01	.00	.12	.12	.02	.01	9.0	.6	200	70
MAR										
19...	--	.01	.35	.36	.10	.02	8.7	.1	260	17
APR										
10...	.00	.00	.23	.23	.01	.01	3.3	.2	190	10
MAY										
08...	.02	.01	.66	.67	.01	.00	8.2	.3	230	16
JUN										
14...	.15	.12	.58	.70	.03	.01	13	.9	260	29
AUG										
19...	.00	.04	.40	.44	.02	.01	14	.3	360	30

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
MAR											
19...	1345	20	1	2	0	50	0	< 1	0	< 1	10
MAY											
08...	1230	10	1	1	100	50	0	< 1	5	< 1	0
JUN											
14...	1220	20	--	2	--	120	--	< 1	--	< 1	--

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
MAR											
19...	0	10	< 3	2	< 10	4	0	30	35	30	17
MAY											
08...	0	3	< 3	3	< 10	50	34	40	35	40	26
JUN											
14...	0	--	< 3	--	< 10	--	11	--	38	--	49

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR												
19...	.0	.0	2	< 10	0	3	0	1	1200	< 6.0	10	4
MAY												
08...	.1	.1	3	< 10	5	0	0	0	1300	< 6.0	140	< 3
JUN												
14...	--	.1	--	< 10	--	6	--	0	1200	< 6.0	--	6

YELLOWSTONE RIVER BASIN

06326953 CLEAR CREEK NEAR MOTT, MT--Continued

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
MAR									
19...	1305	< 13	< 8.8	< .4	< .3	< 6.2	< .4	< 6.0	< .4
MAY									
08...	1230	< 10	< 6.8	< .4	< .3	< 6.0	< .4	< 6.0	< .4

SUSPENDED SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
FEB					
04...	1135	1.0	.12	11	.00
MAR					
19...	1305	6.5	1.3	10	.04
APR					
10...	1055	6.0	1.6	8	.03
MAY					
08...	1230	11.5	.26	25	.02
JUN					
16...	1220	21.0	2.7	22	.16
AUG					
19...	1030	10.5	.30	20	.02

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
MAR												
19...	1305	2	3	4	8	13	17	24	35	55	86	100
MAY												
08...	1230	70	81	85	88	89	91	94	96	100	--	--

PERIPHYTON ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70959)
APR							
10...	1055	22	.710	.550	.003	.000	[illegible]

06326953 CLEAR CREEK NEAR HOYT, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE	FEB 4,80		MAR 19,80		APR 10,80		MAY 8,80		JUN 14,80		AUG 19,80	
TIME	1135		1345		1055		1230		1220		1030	
TOTAL CELLS/ML	470		2400		470		630		480		1400	
DIVERSITY: DIVISION	1.4		0.5		0.5		1.3		0.5		1.0	
.CLASS	1.4		0.5		0.5		1.3		0.5		1.0	
..ORDER	1.7		0.7		0.5		2.2		0.5		1.1	
...FAMILY	3.0		0.8		2.6		2.8		1.4		1.9	
....GENUS	3.2		1.4		2.9		2.9		1.4		1.9	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....ANKISTRODESMUS	5	1	14	1	5	1	55	9	13	3	--	-
....CHLORELLA	30	6	--	-	15	3	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	14	1	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	5	1	14	2	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	20	4	--	-	--	-	--	-
....SCENEDESMUS	--	-	--	-	--	-	--	-	--	-	13	1
..TETRASPORALES												
...COCCOMYXACEAE												
....ELAKATOTHRIX	--	-	--	-	--	-	27	4	--	-	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	15	3	--	-	--	-	14	2	--	-	26	2
....PLATYMONAS	5	1	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	10	2	20	1	--	-	--	-	--	-	26	2
..PENNALES												
...ACHNANTHACEAE												
....ACHNANTHES	10	2	14	1	10	2	14	2	--	-	--	-
...DIATOMACEAE												
....DIATOMA	1000#	30	--	-	1100#	23	--	-	--	-	--	-
...EUNOTIACEAE												
....EUNOTIA	--	-	--	-	10	2	--	-	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	30	6	65	3	950#	20	--	-	--	-	--	-
....SYNEDRA	25	5	14	1	15	3	27	5	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	15	3	--	-	30	6	--	-	--	-	--	-
...NAVICULACEAE												
....NAVICULA	25	5	--	-	10	2	14	2	13	3	120	9
...NITZSCHIACEAE												
....NITZSCHIA	50	11	69	3	1400#	30	61	7	13	3	120	8
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	14	2	--	-	13	1
.CHRYSOPHYCEAE												
[illegible]												
[illegible]												
[illegible]	5	1	--	-	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)												
[illegible]												
[illegible]												
[illegible]												
[illegible]	5	1	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
[illegible]												
[illegible]												
[illegible]												
[illegible]	--	-	--	-	--	-	[illegible]	[illegible]	--	-	13	1
[illegible]	--	-	20	1	--	-	--	-	--	-	--	-
[illegible]												
[illegible]												
[illegible]	--	-	--	-	--	-	--	-	[illegible]	[illegible]	--	-
[illegible]	--	-	--	-	--	-	--	-	--	-	[illegible]	[illegible]
[illegible]												
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	--	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	--	-	[illegible]	[illegible]	--	-	--	-	--	-	--	-
[illegible]												
[illegible]	--	-	--	-	--	-	[illegible]	[illegible]	--	-	--	-
[illegible]												
[illegible]												
[illegible]												
[illegible]												
[illegible]	[illegible]	[illegible]	--	-	[illegible]	[illegible]	--	-	--	-	--	-
[illegible]	--	-	--	-	--	-	--	-	--	-	[illegible]	[illegible]
[illegible]												
[illegible]												
[illegible]												
[illegible]												
[illegible]	--	-	[illegible]	[illegible]	--	-	--	-	--	-	--	-

NOTE: # = [illegible]
* = [illegible]

06326995 UPPER SEVENMILE CREEK NEAR LINDSAY, MT

LOCATION.--Lat 47°08'17", long 104°56'40", in NW¼NE¼NE¼ sec.24, T.16 N., R.53 E., Dawson County, Hydrologic Unit 10100004, at bridge on gravel road 0.6 mi (1.0 km) south of State Highway 200 and 11.5 mi (18.5 km) west-northwest of Glendive.

DRAINAGE AREA.--137 mi^2 (355 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
FEB 04...	1420	.26	3040	8.0	4.5	1.0	8.6	66	K1	--
MAR 28...	1105	1.0	2420	8.0	9.0	1.5	11.3	87	< 1	K16
APR 10...	1555	.53	2520	8.0	9.5	7.0	10.1	91	< 1	K2
JUN 16...	1540	3.0	2150	8.1	25.5	26.5	6.2	85	500	3000
AUG 19...	1330	.54	2900	8.3	22.5	22.0	10.9	136	130	380

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
FEB 04...	1200	740	150	200	330	4.2	9.1	560	0	460
MAR 28...	880	510	120	140	290	4.3	8.2	450	0	370
APR 10...	980	590	130	160	290	4.0	8.2	480	0	390
JUN 16...	770	450	111	120	260	4.1	11	390	0	320
AUG 19...	1100	710	160	170	340	4.6	12	480	0	390

DATE	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
FEB 04...	9.0	1400	12	.2	13	2520	2390	3.43	1.77	.08
MAR 28...	7.2	1000	8.9	.3	10	1910	1760	2.60	5.16	.02
APR 10...	7.9	1100	12	.3	8.4	2010	1940	2.73	2.88	.01
JUN 16...	5.5	900	8.1	.5	13	1760	1600	2.39	14.3	.10
AUG 19...	3.8	1400	14	.4	8.2	2300	2340	3.13	3.35	.00

06326995 UPPER SEVENMILE CREEK NEAR LINDSAY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
FEB 04...	.03	.00	.17	.17	.02	.01	12	.5	210	30
MAR 20...	.03	.03	.44	.47	.02	.01	9.8	.3	160	60
APR 10...	.01	.00	.32	.32	.02	.01	10	.1	190	20
JUN 16...	.11	.11	.99	1.1	.07	.01	25	.3	290	22
AUG 19...	.00	.03	.56	.59	.01	.00	11	.3	340	50

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
MAR 20...	1105	10	2	1	200	30	0	< 3	0	< 3	20
JUN 16...	1540	0	--	2	--	130	--	< 1	--	< 1	--

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
MAR 20...	0	1	< 3	3	< 25	3	0	40	40	60	40
JUN 16...	0	--	< 3	--	< 10	--	20	--	40	--	30

DATE	MERCURY, TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY, DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR 20...	.1	.0	2	< 25	5	0	0	0	20000	[illegible]	[illegible]	20
JUN 16...	--	.5	--	< 10	--	5	--	0	10000	< 10	--	7

06326995 UPPER SEVENMILE CREEK NEAR LINDSAY, MT--Continued

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
MAR									
28...	1105	< 30	< 20	< .4	< .3	< 12	.6	< 13	.7

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
FEB					
04...	1420	1.0	.26	24	.02
MAR					
28...	1105	1.5	1.0	8	.02
APR					
10...	1555	7.0	.53	17	.02
JUN					
16...	1540	26.5	3.0	16	.13
AUG					
19...	1330	22.0	.54	48	.07

PERIPHYTON ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	LENGTH OF EXPO-SURE (DAYS) (00022)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS) (70950)
APR							
10...	1555	14	.790	.710	.210	.000	381

06326995 UPPER SEVENMILE CREEK NEAR LINDSAY, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	FEB 4,80 1420	MAR 28,80 1105	APR 10,80 1555	JUN 16,80 1540	AUG 19,80 1330
TOTAL CELLS/ML	170	600	490	2600	370
DIVERSITY: DIVISION	1.5	1.3	0.4	0.4	1.3
.CLASS	1.5	1.3	0.4	0.4	1.3
..ORDER	1.8	1.4	0.6	0.4	1.5
...FAMILY	2.2	2.7	2.0	1.0	2.6
....GENUS	2.2	2.9	2.1	1.0	2.6

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...OOCYSTACEAE										
....ANKISTRODESMUS	35#	21	--	-	--	-	77	3	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	13	3
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	20	4	--	-	--	-
....SCENEDESMUS	--	-	10	2	10	2	--	-	52	14
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	30	5	--	-	--	-	26	7
....PLATYMONAS	--	-	--	-	5	1	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	10	6	10	2	10	2	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	5	3	20	3	20	4	--	-	--	-
...DIATOMACEAE										
....DIATOMA	5	3	65	11	40	8	--	-	13	3
...FRAGILARIACEAE										
....SYNEDRA	56#	32	130#	21	76#	15	--	-	13	3
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	5	1	--	-	--	-
...NAVICULACEAE										
....NAVICULA	--	-	35	6	20	4	52	2	130#	34
...NITZSCHIACEAE										
....NITZSCHIA	5	3	40	7	290#	58	13	0	77#	21
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	--	-	--	-	--	-	52	14
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	35	6	--	-	440#	17	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	180#	30	--	-	2000#	78	--	-
....SCHIZOTHRIX	56#	32	45	8	--	-	--	-	--	-

NOTE: # = DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* = OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06327850 GLENDIVE CREEK NEAR GLENDIVE, MT

LOCATION.--Lat 47°07'16", long 104°39'51", in SE¼NW¼NW¼ sec.29, T.16 N., R.56 E., Dawson County, Hydrologic Unit 10100004, on frontage road bridge, 1.2 mi (1.9 km) east of Glendive, and 2.4 mi (3.9 km) upstream from mouth.

DRAINAGE AREA.--300 mi^2 (778 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 17...	1500	E.30	0	2610	9.0	23.0	16.0	10.0	109	55	0	10
FEB 29...	0900	E4.0	0	381	7.9	-10.0	.0	12.6	91	55	0	13
MAR 20...	1600	24	1	740	8.5	10.0	1.0	11.2	84	29	0	5.2
APR 16...	1300	E.20	0	2500	8.9	20.0	16.0	9.4	101	85	0	18
AUG 27...	0900	.20	0	1900	9.0	14.0	10.0	9.9	94	51	0	14
SEP 23...	1500	14	0	1340	8.8	16.0	15.0	8.2	87	31	0	8.3

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 17...	7.4	640	37	5.5	900	510	9.8	1.0	--	--	2.0	1730
FEB 29...	5.5	61	3.6	10	80	110	6.7	.2	--	--	6.5	261
MAR 20...	3.9	160	13	3.8	190	160	12	.6	.1	.00	3.7	465
APR 16...	9.7	550	26	5.6	770	540	5.4	.9	.1	.01	3.9	1600
AUG 27...	3.9	410	25	7.2	540	360	7.4	.9	--	--	11	1170
SEP 23...	2.4	300	24	10	420	270	8.1	--	.1	.01	--	834

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT 17...	2.35	1.40	.02	.02	1.1	1.1	.03	--	--	780	520
FEB 29...	.35	2.82	.23	.27	2.4	2.6	.30	--	--	270	110
MAR 20...	.63	30.1	.30	.33	4.6	4.9	1.50	--	37	280	620
APR 16...	2.18	.86	.01	.00	.84	.84	.08	--	10	900	110
AUG 27...	1.59	.63	.20	.02	1.3	1.3	.10	--	--	1?0	210
SEP 23...	1.13	31.5	--	--	--	--	1.70	38	--	250	900

06327850 GLENDIVE CREEK NEAR GLENDIVE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
MAR 20...	1600	9	5	10	0	1	0	90	30	120	2	73000
APR 16...	1300	2	3	0	0	0	0	0	0	4	6	130

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR 20...	49	0	1100	30	.5	.0	130	6	3	1	330	30
APR 16...	0	2	10	10	.1	.1	8	5	1	1	20	0

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 17...	1500	16.0	E.30	83	.07	--
FEB 29...	0900	.0	E4.0	815	8.8	100
MAR 20...	1600	1.0	24	3610	234	98
APR 16...	1300	10.0	E.20	88	.05	--
AUG 27...	0900	10.0	.20	368	.20	99
SEP 23...	1500	15.0	14	7640	289	100

06328000 DEER CREEK NEAR GLENDIVE, MT

LOCATION.--Lat 47°09'44", long 104°42'08", in NE¼NW¼ sec.12, T.16 N., R.55 E., Dawson County, Hydrologic Unit 10100004, at bridge on Montana Highway 16, 3.8 mi (6.1 km) northeast of Interstate Highway 94, and 4.0 mi (6.4 km) north of Glendive.

DRAINAGE AREA.--197.5 mi^2 (511.5 km^2).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
APR 02...	1330	.01	2570	8.3	7.5	6.0	11.6	101	K72	K85
JUN 16...	1225	2.1	2170	8.4	24.0	22.0	8.1	99	520	2100
AUG 19...	1640	4.1	2450	8.6	24.5	22.0	8.5	105	260	660

DATE	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)
APR 02...	590	190	110	76	420	7.5	9.0	490	0	400
JUN 16...	420	100	75	55	370	8.9	10	380	4	310
AUG 19...	420	100	76	57	420	8.9	9.7	360	14	320

DATE	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
APR 02...	3.9	1000	21	.3	8.9	1920	1890	2.61	.05	.16
JUN 16...	2.5	850	14	.3	9.6	1610	1580	2.19	9.13	.37
AUG 19...	1.6	1000	18	.4	6.9	1770	1780	2.41	19.6	.42

DATE	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)
APR 02...	.17	.00	.61	.61	.03	.03	11	.5	190	30
JUN 16...	.38	.03	1.1	1.1	.07	.01	24	--	230	25
AUG 19...	.24	.10	.73	.83	.05	.01	20	.7	250	60

06328000 DEER CREEK NEAR GLENDIVE, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)
JUN 16	1225	20	2	1	100	60	0	< 1	0	< 1	0

DATE	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)
JUN 16...	0	0	< 3	10	< 10	2	< 10	50	48	60	10

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVE (UG/L AS ZN (01090
JUN 16...	.4	.0	2	< 10	8	0	1	1	1100	< 10	50	1

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DISSOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
JUN 16...	1225	< 24	< 16	2.0	1.4	< 12	3.2	< 11	3.0

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
APR 02...	1330	6.0	.01	26	.00
JUN 16...	1530	26.5	.62	93	.16
16...	1225	22.0	2.1	104	.59
AUG 19...	1640	22.0	[illegible]	88	[illegible]

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80164)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80165)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80166)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80167)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80168)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
JUN 16...	1225	1	2	16	22	31	53	65	76	86	100

06328000 DEER CREEK NEAR GLENDIVE, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO AUGUST 1980

DATE TIME	APR 2,80 1330	JUN 16,80 1225	AUG 19,80 1640
TOTAL CELLS/ML	60	320	5700
DIVERSITY: DIVISION	0.8	1.4	1.3
.CLASS	0.8	1.4	1.3
..ORDER	1.0	1.5	1.6
...FAMILY	1.4	2.2	2.0
....GENUS	1.4	2.6	2.9

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	--	-	--	-	120	2
...OOCYSTACEAE						
....ANKISTRODESMUS	5	8	39	12	450	8
....KIRCHNERIELLA	--	-	--	-	14	0
....OOCYSTIS	--	-	100#	32	200	4
....TREUBARIA	--	-	--	-	14	0
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	--	-	520	9
....SCENEDESMUS	--	-	77#	24	390	7
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	10#	17	--	-	58	1
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...CHAETOCERACEAE						
....CHAETOCEROS	--	-	--	-	14	0
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	13	4	29	1
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	5	8	--	-	29	1
...NAVICULACEAE						
....NAVICULA	--	-	13	4	--	-
...NITZSCHIACEAE						
....NITZSCHIA	40#	67	26	8	360	6
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	13	4	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	14	0
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	--	-	120	2
....ANACYSTIS	--	-	39	12	870	15
....GOMPHOSPHAERIA	--	-	--	-	2200#	38
..HORMOGONALES						
...RIVULARIACEAE						
....RAPHIDIOPSIS	--	-	--	-	290	5

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06329000 COTTONWOOD CREEK NEAR INTAKE, MT

LOCATION.--Lat 47°14'50", long 104°18'15", in E½ sec.14, R.58 E., T.17 N., Wibaux County, Hydrologic Unit 10100004, 16.2 mi (26.1 km) southeast of Intake, 26 mi (41.8 km) north of Wibaux.

DRAINAGE AREA.--85.3 mi² (221 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

REMARKS.--Scheduled samplings were not possible during periods of no flow.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
MAR 9...	1400	2.1	83	877	7.7	10.0	.0	9.3	70	220	110	39
APR 5...	1400	.10	2	3520	8.1	14.0	10.5	9.1	88	940	500	130
JUN 4...	0930	.05	0	3280	8.2	20.0	19.5	6.6	77	810	430	110

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLID SUM OF CONST-TUENT DIS-SOLVED (MG/L) (70301)
MAR 9...	30	86	2.5	12	110	270	3.2	.1	.2	.00	6.7	514
APR 5...	150	540	7.7	12	440	1600	9.2	.4	.1	.00	7.1	2710
JUN 4...	130	480	7.3	14	380	1500	8.3	.3	.3	.00	9.1	2480

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
MAR 19...	.70	2.91	.03	.23	2.7	2.9	.11	26	--	280	270
APR 15...	3.69	.73	.04	.00	1.2	1.2	.07	14	.5	650	60
JUN 24...	3.37	.33	.01	.05	2.0	2.0	.08	24	.1	870	40

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)
[illegible]	1400	1	1	0	< 1	0	< 1	0	0	6	3	620
[illegible]	1400	3	1	0	0	0	0	0	0	1	0	810

06329000 COTTONWOOD CREEK NEAR INTAKE, MT--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR 19...	3	0	150	150	.1	.1	3	1	0	0	20	< 3
APR 15...	0	1	120	80	.1	.1	6	0	0	0	80	0

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
MAR 19...	1400	.0	2.1	19	.11
APR 15...	1400	10.5	.10	38	.01
JUN 24...	0930	19.5	.05	10	.00

06329200 BURNS CREEK NEAR SAVAGE, MT

LOCATION (REVISED).--Lat 47°22'20", long 104°25'46", in NE¼SE¼SE¼ sec.27, T.19 N., R.57 E., Richland County, Hydrologic Unit 10100004, on right bank 1,000 ft (305 m) upstream from bridge on State Highway 16, 7 mi (11 km) southwest of Savage, and at mile 2.1 (3.4 km).

DRAINAGE AREA.--233 mi² (603 km²).

PERIOD OF RECORD.--October 1957 to September 1967, September 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,000 ft (610 m), from topographic map.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Minor diversions for irrigation upstream.

AVERAGE DISCHARGE.--15 years (1958-67, 1976-80), 6.96 ft³/s (0.197 m³/s), 5,040 acre-ft/yr (6.21 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,100 ft³/s (59.5 m³/s) Mar. 20, 1960, gage height, 5.31 ft (1.619 m), from floodmarks, from rating curve extended above 500 ft³/s (14.2 m³/s) on basis of slope-area measurement of peak flow; maximum gage height, 5.40 ft (1.646 m) Mar. 28, 1979 (backwater from ice); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 25 ft³/s (0.71 m³/s) and maximums (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 3	1900	*301	8.52	*3.81	1.161	June 13	0500	127	3.60	3.27	0.997

No flow on several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.72	1.2	1.3	1.0	.96	2.2	3.3	1.1	.64	.30	.00	.84
2	.81	1.1	1.4	.94	1.0	2.5	3.5	1.1	.64	.30	.00	.78
3	.86	1.1	1.5	.94	1.1	2.3	3.6	.95	28	.30	.00	.78
4	.84	1.1	1.6	.86	1.2	2.0	3.8	.85	5.0	.30	.00	.78
5	.90	1.1	1.6	.72	1.2	1.8	3.0	.84	.95	.27	.00	.64
6	.86	1.2	1.7	.58	1.3	1.8	2.7	.78	.56	.23	.00	.64
7	.81	1.2	1.5	.50	1.1	1.9	2.7	.76	.56	.18	.00	.64
8	.86	1.2	1.4	.41	1.2	1.9	2.7	.78	.48	.10	.00	.56
9	.92	1.2	1.4	.36	1.2	2.0	3.0	.78	.38	.12	.00	.48
10	1.1	1.2	1.3	.31	1.1	1.9	3.3	.84	.30	.10	.06	.43
11	1.0	1.2	1.2	.29	1.0	2.0	3.3	.78	.38	.03	.06	.66
12	.95	1.2	1.2	.27	.98	2.2	3.0	.78	.64	.03	.02	.78
13	.96	1.4	1.1	.31	.96	2.5	3.3	.74	26	.00	.02	.84
14	1.1	1.4	1.2	.36	.94	2.7	3.0	.78	5.0	.00	.00	.84
15	1.2	1.4	1.1	.40	.90	3.0	2.7	.78	1.2	.00	.78	.78
16	1.1	1.4	.80	.67	.90	3.0	3.0	.84	.84	.00	.66	.78
17	.95	1.4	.72	.70	.92	3.7	2.5	.84	.78	.03	9.9	.78
18	1.0	1.4	2.0	.80	.93	6.1	2.2	.84	.58	.03	5.7	.78
19	1.1	1.5	1.9	.82	.94	6.8	2.3	.84	.48	.00	2.2	.84
20	1.2	1.6	1.8	.78	.88	6.2	2.0	.70	.03	.00	1.4	.84
21	[illegible]	[illegible]	[illegible]	.70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	---	[illegible]	[illegible]	---	[illegible]	---	[illegible]	---	[illegible]	[illegible]	---
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MEAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MAX	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MIN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
AC-FT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

CAL YR 1979 TOTAL [illegible] MEAN [illegible] MAX [illegible] MIN [illegible] AC-FT [illegible]
WTR YR 1980 TOTAL [illegible] MEAN [illegible] MAX [illegible] MIN [illegible] AC-FT [illegible]

[illegible] YELLOWSTONE RIVER NEAR SIDNEY, MT

LOCATION.--Lat [illegible], long [illegible], in [illegible] sec.[illegible], T.[illegible] N., R.[illegible] E., Richland County, Hydrologic Unit [illegible], on left bank at [illegible] Company powerplant, [illegible] downstream from bridge on State Highway [illegible], [illegible] south of Sidney, [illegible] downstream from Fox Creek, and at mile [illegible], revised.

DRAINAGE AREA.--[illegible] mi² ([illegible] km²). Area at site [illegible] upstream, [illegible] mi² ([illegible] km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October [illegible] to September [illegible] (published as "at Intake"), October [illegible] to current year. If monthly figures of diversions to Lower Yellowstone Canal at Intake are added to records at this site, records equivalent to those published as Yellowstone River at Glendive [illegible] may be obtained. Monthly discharge only for some periods, published in WSP [illegible]. Monthly figures of diversions into Lower Yellowstone Canal prior to [illegible] published in WSP [illegible], [illegible] published in WSP [illegible], [illegible] published in WSP [illegible], and [illegible] to current year are published in annual reports.

GAGE.--Water-stage recorder. Datum of gage is [illegible] ft ([illegible] m) National Geodetic Vertical Datum of [illegible] (levels by U.S. Army Corps of Engineers). [illegible], to [illegible], nonrecording gage at site [illegible] upstream at different datum. [illegible], water-stage recorder at [illegible] highway bridge [illegible] upstream and [illegible], to [illegible], nonrecording gage on same bridge at datum [illegible] higher. [illegible], to [illegible], water-stage recorder at site [illegible] upstream at different datum.

REMARKS.--Water-discharge records good except those for winter period, which are poor. Some regulation on tributary streams. Diversion for irrigation of about [illegible] acres ([illegible]) above station. Lower Yellowstone Project Main Canal diverts from left bank in [illegible] sec.[illegible], T.[illegible] N., R.[illegible] E., at Lower Yellowstone diversion dam at Intake about [illegible] upstream for irrigation of about [illegible] acres ([illegible]) of which about one-third lies above station (see table below).

AVERAGE DISCHARGE.--[illegible] years, [illegible] ft³/s ([illegible] m³/s), [illegible] acre-ft/yr ([illegible]).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, [illegible] ft³/s ([illegible] m³/s) [illegible], gage height, [illegible] ft ([illegible] m), site and datum then in use; maximum gage height observed, [illegible] ft ([illegible] m) [illegible], site and datum then in use (backwater from ice); minimum discharge, [illegible] ft³/s ([illegible] m³/s) [illegible], gage height, [illegible] ft ([illegible] m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, [illegible] ft³/s ([illegible] m³/s) June [illegible], maximum gage height, [illegible] ft ([illegible] m) June [illegible]; minimum daily discharge, [illegible] ft³/s ([illegible] m³/s) Jan. [illegible]; minimum gage height, [illegible] ft ([illegible] m) Aug. [illegible].

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER [illegible] TO SEPTEMBER [illegible]
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
31	[illegible]	---	[illegible]	[illegible]	---	[illegible]	---	[illegible]	---	[illegible]	[illegible]	---
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MEAN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MAX	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MIN	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
AC-FT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
(†)	0	0	0	0	0	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

CAL YR [illegible] TOTAL [illegible] MEAN [illegible] MAX [illegible] MIN [illegible] AC-FT [illegible] (†) [illegible]
WTR YR [illegible] TOTAL [illegible] MEAN [illegible] MAX [illegible] MIN [illegible] AC-FT [illegible] (†) [illegible]

† Diversions, in acre-feet, by Lower Yellowstone Canal, furnished by Water and Power Resources Service (formerly the Bureau of Reclamation).

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued
(National Stream Quality Accounting Network)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1951 to current year.
WATER TEMPERATURES: January 1951 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to current year.

INSTRUMENTATION.--Temperature recorder April to November 1974, May to September 1975, July 1977 to current year.

REMARKS.--Prior to July 1972, sediment sampling and record computation under supervision of U.S. Army Corps of Engineers. Flow affected by ice during most of winter months.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,780 micromhos Jan. 14, 1951; minimum daily, 193 micromhos Aug. 15, 1964.
WATER TEMPERATURES: Maximum, 29.0°C July 23, 1960; minimum, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 26,800 mg/L May 8, 1975; minimum daily mean, 8 mg/L Jan. 9, 1973.
SEDIMENT LOADS: Maximum daily, 3,030,000 tons (2,750,000 tonnes) May 8, 1975; minimum daily, 112 tons (102 megagrams) Jan. 12, 1980.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,130 micromhos Jan. 18; minimum daily, 294 micromhos May 28.
WATER TEMPERATURES: Maximum, 25.5°C Aug. 2; minimum, 0.0°C on many days during November to March.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 12,700 mg/L Aug. 17; minimum daily mean, 17 mg/L Jan. 11.
SEDIMENT LOADS: Maximum daily, 394,000 tons (357,000 megagrams) Aug. 17; minimum daily, 112 tons (102 megagrams) Jan. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT											
18...	1300	5920	0	895	8.2	15.0	12.0	12	9.9	99	78
NOV											
27...	1300	5300	73	928	8.1	-6.0	.0	4.2	13.1	95	K5
DEC											
19...	0900	4100	1	962	8.3	2.0	.0	3.4	11.8	86	K3
JAN											
24...	1230	7400	2	970	8.1	7.0	.0	7.3	11.8	87	20
FEB											
28...	0900	13000	2	858	8.2	-5.0	1.0	18	11.2	83	K15
APR											
03...	1600	8190	1	1080	8.2	6.5	5.5	140	11.1	93	K6
17...	1500	9180	0	1020	8.5	25.0	11.5	65	9.9	96	< 1
MAY											
23...	1830	13200	0	547	8.6	34.0	23.0	200	7.2	91	420
JUN											
25...	1300	34300	0	425	8.2	26.0	21.0	160	7.4	88	140
JUL											
31...	1100	7900	0	770	8.5	30.0	23.0	14	7.4	91	50
AUG											
28...	1400	6860	0	860	8.4	23.0	18.5	70	8.3	94	K37
SEP											
26...	1300	11000	0	684	8.5	12.5	12.5	65	9.8	96	K17

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT 18...	K12	290	120	62	33	85	2.2	4.9	170	260	15
NOV 27...	K23	320	130	70	35	81	2.0	5.0	190	280	15
DEC 19...	K16	320	120	75	31	86	2.1	5.0	200	270	16
JAN 24...	20	320	130	77	32	85	2.1	4.5	190	270	14
FEB 28...	260	290	120	71	28	73	1.9	3.9	170	260	15
APR 03...	K31	330	150	83	30	93	2.2	4.5	180	320	19
17...	K7	300	120	72	30	91	2.3	4.6	180	300	19
MAY 23...	130	170	62	39	18	44	1.5	3.4	110	130	13
JUN 25...	220	160	80	34	19	26	.9	2.3	83	120	5.5
JUL 31...	120	260	97	55	29	68	1.8	4.1	160	210	10
AUG 28...	60	270	97	59	29	78	2.1	4.6	180	250	15
SEP 26...	K21	210	74	51	21	57	1.7	3.9	150	180	10

DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)
OCT 18...	.5	7.6	588	571	.80	9400	.08	.12	.00	--
NOV 27...	.5	10	624	614	.85	8930	.35	--	.01	--
DEC 19...	.5	10	697	616	.95	7720	.48	.40	.01	.01
JAN 24...	.5	12	622	612	.85	12400	.61	.61	.09	.08
FEB 28...	.6	11	573	567	.78	20100	.52	.52	.17	.10
APR 03...	.4	7.4	689	667	.94	15200	.23	.23	.06	.06
17...	.5	8.9	645	635	.88	16000	.27	.28	.00	.00
MAY 23...	.3	17	324	334	.44	11500	.14	.13	.03	.02
JUN 25...	.3	10	250	268	.34	23200	.19	.19	.05	.08
JUL 31...	.5	19	490	492	.67	10500	.11	.15	.00	.00
AUG 28...	.5	9.2	563	548	.77	10400	.37	.04	.02	.01
SEP 26...	.4	10	443	418	.60	13200	.17	.20	.00	.01

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, ORGANIC DISSOLVED (MG/L AS N) (00607)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED (MG/L AS C) (00689)
OCT									
18...	1.1	--	1.1	.57	.03	.02	4.5	--	--
NOV									
27...	.44	--	.45	--	.01	.00	--	5.9	.0
DEC									
19...	.49	.48	.50	.49	.01	.00	2.9	--	--
JAN									
24...	.35	.20	.44	.28	.03	.01	3.3	--	--
FEB									
28...	1.0	.22	1.2	.32	.02	.01	--	9.9	.0
APR									
03...	.90	.50	.96	.56	.19	.01	5.8	--	--
17...	.86	.41	.86	.41	.12	.02	6.0	--	--
MAY									
23...	1.2	.67	1.2	.69	.01	.05	--	4.6	1.7
JUN									
25...	.95	1.0	1.0	1.1	.02	.01	9.5	--	--
JUL									
31...	1.0	.78	1.0	.78	.08	.01	7.2	--	--
AUG									
28...	1.8	.32	1.8	.33	.36	.05	--	12	1.7
SEP									
26...	.87	.73	.87	.74	.00	.01	6.5	--	--

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
NOV										
27...	1300	6	5	200	70	0	< 1	0	0	0
DEC										
19...	0900	--	--	--	--	--	--	--	--	--
FEB										
28...	0900	6	6	300	60	0	< 1	30	0	0
APR										
03...	1600	--	--	--	--	--	--	--	--	--
MAY										
23...	1830	7	2	100	100	0	< 1	0	0	4
AUG										
28...	1400	7	4	200	60	1	< 1	20	0	6
SEP										
26...	1300	--	--	--	--	--	--	--	--	--

DATE	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)
NOV										
27...	< 3	0	5	210	30	6	1	20	20	.1
DEC										
19...	--	--	--	--	--	--	--	--	--	--
FEB										
28...	< 3	9	1	560	10	1	6	20	8	.2
APR										
03...	--	--	--	--	--	--	--	--	--	--
MAY										
23...	< 3	26	4	11000	2700	11	0	260	210	.2
AUG										
28...	< 3	21	3	1000	60	15	0	300	6	.0
SEP										
26...	--	--	--	--	--	--	--	--	--	--

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV 27...	.1	4	2	1	1	0	0	110	70
DEC 19...	--	--	--	--	--	0	--	--	--
FEB 28...	.1	1	1	2	2	0	0	30	3
APR 03...	--	--	--	--	--	0	--	--	--
MAY 23...	.1	13	2	1	1	0	0	60	20
AUG 28...	.0	25	0	2	2	0	0	70	4
SEP 26...	--	--	--	--	--	0	--	--	--

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	PCB TOTAL (UG/L) (39516)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39333)	CHLOR-DANE, TOTAL (UG/L) (39350)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39368)
NOV 27...	1300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 28...	0900	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	DDT, TOTAL (UG/L) (39370)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39373)	DI-AZINON, TOTAL (UG/L) (39570)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39571)	DI-ELDRIN TOTAL (UG/L) (39380)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39383)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39399)	HEPTA-CHLOR, TOTAL (UG/L) (39410)
NOV 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 28...	ND	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39413)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39343)	MALA-THION, TOTAL (UG/L) (39530)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39531)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL PARA-THION, TOT. IN BOTTOM MATL. (UG/KG) (39601)
NOV 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 28...	--	ND	--	ND	--	ND	--	ND	--	ND	--

DATE	METHYL TRI-THION, TOTAL (UG/L) (39790)	METHYL TRI-THION, TOT. IN BOTTOM MATL. (UG/KG) (39791)	PARA-THION, TOTAL (UG/L) (39540)	PARA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39541)	TOX-APHENE, TOTAL (UG/L) (39400)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39403)	TOTAL TRI-THION (UG/L) (39786)	TRI-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39787)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	SILVEX, TOTAL (UG/L) (39760)
NOV 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB 28...	ND	--	ND	--	ND	--	ND	--	--	--	--

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	811	856	968	918	930	840	929	652	479	399	689	780
2	814	869	979	916	949	829	969	650	487	424	690	780
3	818	829	980	930	962	828	1000	629	491	439	702	790
4	821	799	962	949	982	834	1020	598	507	478	721	769
5	824	801	948	951	1000	861	1020	582	490	505	711	759
6	822	821	931	955	1020	852	1000	560	470	490	720	742
7	821	840	907	972	1030	841	992	531	468	484	721	740
8	817	836	906	976	1020	838	1000	511	472	480	728	739
9	814	811	881	981	1000	841	1020	502	490	470	729	735
10	818	820	869	990	969	902	1050	493	509	463	732	740
11	821	812	872	1000	931	980	1060	489	501	480	755	740
12	820	821	882	1020	904	1000	1050	461	507	516	761	735
13	822	830	903	1040	871	988	1030	433	503	530	768	749
14	827	832	931	1060	873	970	998	422	601	530	771	760
15	842	821	944	1090	891	929	1000	411	483	539	781	755
16	834	802	972	1110	896	888	1000	447	421	559	790	740
17	832	874	980	1120	902	850	991	471	440	561	831	740
18	832	871	971	1130	911	851	998	485	375	579	860	720
19	839	877	971	1100	930	870	989	515	382	599	850	675
20	837	881	990	---	945	899	970	531	388	611	861	620
21	842	889	1020	1110	958	900	938	600	399	630	821	605
22	841	881	1060	1060	971	896	906	572	399	648	810	608
23	840	886	1050	980	970	893	882	547	360	660	825	610
24	836	895	1050	929	979	900	880	515	348	665	900	611
25	829	880	1040	905	960	915	842	456	329	650	870	640
26	840	857	999	899	926	928	819	379	320	641	829	650
27	850	862	961	893	880	950	772	302	312	661	849	635
28	841	910	940	902	850	951	721	294	331	674	819	640
29	843	939	930	924	841	967	671	302	345	691	800	632
30	839	974	920	948	---	952	646	329	366	692	789	635
31	842	---	918	959	---	931	---	379	---	673	779	---
MEAN	830	856	956	991	940	899	939	485	432	562	783	702

WTR YR 1980 MEAN 780 MAX 1130 MIN 294

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	16.0	15.0	15.5	6.0	4.5	5.0	.0	.0	.0	.0	.0	.0
2	15.5	14.5	15.0	4.5	4.0	4.0	.0	.0	.0	.0	.0	.0
3	14.5	13.5	14.0	4.0	3.0	3.5	.0	.0	.0	.0	.0	.0
4	13.5	12.5	13.0	4.0	3.0	3.5	.0	.0	.0	.0	.0	.0
5	13.5	12.5	12.5	3.0	2.5	3.0	.0	.0	.0	.0	.0	.0
6	13.5	12.0	12.5	2.5	1.5	2.0	.0	.0	.0	.0	.0	.0
7	14.0	12.5	13.5	1.5	1.0	1.0	.0	.0	.0	.0	.0	.0
8	13.5	12.0	13.0	.5	.0	.5	.0	.0	.0	.0	.0	.0
9	12.0	11.0	11.5	1.5	.0	.0	.0	.0	.0	.0	.0	.0
10	13.0	11.0	12.0	1.0	.0	.5	.0	.0	.0	.0	.0	.0
11	13.0	12.5	13.0	1.0	.5	.5	.0	.0	.0	.0	.0	.0
12	12.5	11.0	11.5	1.5	.5	1.0	.0	.0	.0	.0	.0	.0
13	11.0	9.5	10.5	2.0	.5	1.0	.0	.0	.0	.0	.0	.0
14	11.5	10.0	11.0	1.5	1.0	1.0	.0	.0	.0	.0	.0	.0
15	12.0	11.0	11.5	2.5	1.5	2.0	.0	.0	.0	.0	.0	.0
16	12.0	11.0	11.5	2.5	2.0	2.5	.0	.0	.0	.0	.0	.0
17	12.5	11.0	12.0	3.0	2.5	2.5	.0	.0	.0	.0	.0	.0
18	12.5	11.5	12.0	3.5	2.5	3.0	.0	.0	.0	.0	.0	.0
19	12.0	11.0	11.5	3.0	2.5	3.0	.0	.0	.0	.0	.0	.0
20	11.5	10.0	10.5	2.5	2.0	2.5	.0	.0	.0	.0	.0	.0
21	10.0	9.0	9.5	2.0	.5	1.0	.0	.0	.0	.0	.0	.0
22	9.5	8.5	9.0	.5	.0	.5	.0	.0	.0	.0	.0	.0
23	9.5	8.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	9.5	8.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	9.5	9.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
26	9.5	9.0	9.5	.5	.0	.5	.0	.0	.0	.0	.0	.0
27	9.5	8.5	9.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
28	9.5	8.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
29	9.0	8.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
30	8.5	7.5	8.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
31	7.5	6.0	6.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	16.0	6.0	11.0	6.0	.0	1.5	.0	.0	.0	.0	.0	.0

YELLOWSTONE RIVER BASIN

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MAX	MIN FEBRUARY	MEAN	MAX	MIN MARCH	MEAN	MAX	MIN APRIL	MEAN	MAX	MIN MAY	MEAN
1	.0	.0	.0	.0	.0	.0	---	---	---	18.5	16.0	17.0
2	.0	.0	.0	.0	.0	.0	5.5	.5	3.0	18.5	16.5	17.5
3	.0	.0	.0	.0	.0	.0	6.5	5.0	6.0	19.0	16.5	18.0
4	.0	.0	.0	.0	.0	.0	8.0	5.5	7.0	19.5	17.5	18.5
5	.0	.0	.0	.0	.0	.0	8.5	7.0	8.0	18.5	17.0	18.0
6	.0	.0	.0	.0	.0	.0	9.0	8.0	8.5	18.0	16.0	17.0
7	.0	.0	.0	.0	.0	.0	9.0	7.0	8.0	16.5	14.5	15.5
8	.0	.0	.0	.0	.0	.0	8.0	6.5	7.0	16.0	14.0	15.0
9	.0	.0	.0	.0	.0	.0	9.0	6.5	7.5	15.0	13.5	14.0
10	.0	.0	.0	.0	.0	.0	8.5	8.0	8.5	15.0	12.5	13.5
11	.0	.0	.0	.0	.0	.0	8.5	7.5	8.0	15.0	12.5	14.0
12	.0	.0	.0	.0	.0	.0	9.0	7.5	8.5	16.0	13.5	14.5
13	.0	.0	.0	.5	.0	.0	10.5	8.0	9.0	15.5	13.5	14.5
14	.0	.0	.0	.5	.0	.0	11.5	9.5	10.5	15.5	13.0	14.5
15	.0	.0	.0	.5	.0	.0	11.5	10.5	11.0	15.0	13.5	14.0
16	.0	.0	.0	.5	.0	.0	13.0	10.5	11.5	14.0	13.5	14.0
17	.0	.0	.0	1.0	.0	.5	13.5	11.5	12.5	16.0	13.5	14.5
18	.0	.0	.0	.5	.0	.5	14.5	12.5	13.5	17.5	15.0	16.5
19	.0	.0	.0	.5	.0	.0	15.5	13.0	14.5	19.0	16.0	17.5
20	.0	.0	.0	.5	.5	.5	17.0	14.0	15.5	20.0	18.0	19.0
21	.0	.0	.0	.5	.5	.5	17.5	15.5	16.5	21.5	19.0	20.5
22	.0	.0	.0	.5	.5	.5	16.5	14.5	15.0	23.0	20.5	22.0
23	.0	.0	.0	1.0	.5	.5	15.0	13.5	14.0	22.5	21.5	22.0
24	.0	.0	.0	.5	.5	.5	15.0	13.0	14.0	22.0	20.5	21.0
25	.0	.0	.0	.5	.5	.5	15.5	13.5	14.5	21.0	19.5	20.5
26	.0	.0	.0	.5	.5	.5	15.5	13.5	14.5	19.0	18.0	18.5
27	.0	.0	.0	.5	.5	.5	16.5	14.0	15.0	18.5	17.0	18.0
28	.0	.0	.0	---	---	---	17.0	14.5	16.0	18.0	17.0	17.5
29	.0	.0	.0	---	---	---	17.0	15.0	16.5	17.5	16.5	17.0
30	---	---	---	---	---	---	17.5	15.5	16.5	16.5	16.0	16.0
31	---	---	---	---	---	---	---	---	---	17.0	15.0	16.0
MONTH	.0	.0	.0	1.0	.0	.0	17.5	.5	11.5	23.0	12.5	17.0

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
1	17.0	16.0	16.5	21.5	19.5	20.5	24.5	23.0	23.5	19.0	17.5	18.0
2	18.0	16.5	17.5	22.0	20.5	21.0	25.5	23.0	24.0	18.5	17.5	18.0
3	18.5	17.0	17.5	22.5	21.0	22.0	24.5	21.0	23.0	18.0	17.5	17.5
4	20.0	18.0	19.0	23.5	21.5	22.5	21.0	17.5	19.0	18.0	16.5	17.0
5	20.5	19.0	19.5	23.5	22.0	23.0	20.0	17.0	18.5	18.5	16.5	17.5
6	19.5	18.0	18.5	25.0	22.5	23.5	21.0	18.0	19.5	19.5	17.5	18.5
7	18.5	17.0	17.5	24.0	22.5	23.5	21.0	20.0	20.5	20.5	18.5	20.0
8	19.5	16.5	18.0	23.0	21.5	22.0	22.0	20.0	21.0	20.5	17.5	19.0
9	20.0	17.5	19.0	23.0	21.0	22.0	21.5	20.5	21.0	18.0	16.5	17.5
10	20.5	18.0	19.5	25.0	21.5	23.0	22.0	20.5	21.5	18.0	16.0	17.5
11	20.5	19.0	19.5	24.5	23.0	23.5	22.5	20.5	21.5	18.0	17.0	17.5
12	22.0	19.0	20.5	23.0	21.5	22.5	22.0	20.5	21.5	17.5	16.5	17.0
13	22.5	20.5	21.5	23.5	21.5	22.5	22.0	20.0	21.0	17.5	16.0	16.5
14	22.0	19.5	21.0	23.5	21.5	22.5	21.5	20.0	21.0	17.0	16.0	16.5
15	21.5	20.5	21.0	23.0	22.0	22.5	20.5	18.5	19.5	---	---	---
16	21.0	19.5	20.0	23.0	21.5	22.5	18.5	16.5	17.5	---	---	---
17	21.0	19.5	20.0	23.0	21.5	22.0	18.5	16.0	17.0	---	---	---
18	20.5	20.0	20.5	22.5	20.0	21.5	20.5	18.0	19.0	---	---	---
19	20.0	19.5	19.5	22.5	21.0	21.5	21.0	20.0	20.5	---	---	---
20	20.5	19.0	19.5	21.5	20.5	21.0	20.5	20.0	20.5	---	---	---
21	21.5	20.0	20.5	22.0	19.5	21.0	20.5	19.0	20.0	---	---	---
22	23.0	21.5	22.0	24.0	21.0	22.5	20.0	19.0	19.5	---	---	---
23	23.0	22.0	22.5	25.0	22.5	23.5	19.5	18.0	18.5	---	---	---
24	22.5	21.5	22.0	24.5	23.0	24.0	21.0	18.5	20.0	---	---	---
25	22.0	21.0	21.5	23.5	21.5	23.0	21.0	19.0	19.5	---	---	---
26	21.5	20.0	20.5	24.5	22.0	23.0	19.5	17.5	18.0	---	---	---
27	20.0	19.0	19.5	24.0	22.0	23.5	17.5	16.0	17.0	---	---	---
28	19.0	17.5	18.0	24.5	22.5	23.5	19.0	17.0	18.5	---	---	---
29	20.5	17.5	19.0	24.5	22.5	23.0	19.5	18.5	19.0	---	---	---
30	21.0	20.0	20.5	23.5	21.5	22.5	19.0	17.5	18.5	---	---	---
31	---	---	---	24.5	22.5	23.5	19.0	18.0	18.5	---	---	---
MONTH	23.0	16.0	19.5	25.0	19.5	22.5	25.5	16.0	20.0	20.5	16.0	17.5
YEAR	25.5	.0	10.0									

YELLOWSTONE RIVER BASIN

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)	SED. SUSP. FALL DIAM. % FINER THAN .250 MM (70344)	SED. SUSP. FALL DIAM. % FINER THAN .500 MM (70345)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT												
18...	1300	12.0	5920	50	799	--	--	--	--	--	--	86
APR												
03...	1600	5.5	8190	363	8030	--	--	--	--	--	--	80
17...	1500	11.5	9180	338	8380	--	--	--	--	--	--	58
MAY												
23...	1830	23.0	13200	488	17400	--	--	--	--	--	--	77
27...	1400	17.0	33700	1280	116000	--	--	--	--	--	--	77
27...	1600	17.0	33700	1120	102000	35	57	84	94	100	--	--
JUN												
25...	1300	21.0	34300	516	47800	41	64	81	91	99	100	--
JUL												
31...	1100	23.0	7900	68	1450	--	--	--	--	--	--	88
AUG												
28...	1400	18.5	6860	629	11700	82	98	100	--	--	--	--

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
OCT											
18...	1300	11	74	99	100	--	--	--	--	--	--
APR											
03...	1600	75	96	100	--	--	--	--	--	--	--
17...	1500	64	94	99	100	--	--	--	--	--	--
MAY											
23...	1830	88	100	--	--	--	--	--	--	--	--
JUN											
25...	1300	38	86	100	--	--	--	--	--	--	--
JUL											
31...	1100	31	68	75	76	76	77	77	80	87	100
AUG											
28...	1400	51	93	100	--	--	--	--	--	--	--

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

SUSPENDED-SEDIMENT, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	45	634	46	660	112	1690	33	642	48	583	118	3660
2	48	673	50	753	105	1900	29	548	34	413	164	4430
3	46	652	52	809	105	2070	25	459	28	363	193	5110
4	44	627	53	803	106	2230	23	435	31	469	198	5350
5	42	599	51	744	105	2380	21	420	48	804	184	4970
6	37	521	49	706	104	2500	19	400	77	1410	160	3890
7	36	513	46	660	114	2950	19	390	110	2080	131	2620
8	38	548	45	645	103	2500	19	308	139	2630	98	1880
9	38	551	47	712	96	2540	19	169	154	2910	76	1480
10	37	533	51	777	96	2200	18	136	144	2640	75	1520
11	35	507	56	830	97	1960	17	115	133	2370	89	2040
12	34	504	59	865	94	1780	18	112	125	2160	111	2850
13	36	551	60	870	90	1650	26	168	120	2070	135	3790
14	40	622	69	1180	84	1450	36	321	117	2020	140	4310
15	43	679	71	1290	81	1400	39	369	115	1990	132	4280
16	44	695	72	1310	80	1300	44	535	114	1970	150	4780
17	45	725	72	1310	80	1120	51	744	114	1910	192	6010
18	49	794	72	1290	79	1000	60	1130	82	1330	211	6380
19	52	838	70	1250	78	863	70	1360	59	956	219	6270
20	52	882	69	1220	81	1050	78	1520	58	1020	222	5990
21	50	873	68	1210	79	1220	79	1370	64	1210	223	5960
22	49	861	66	1140	76	1440	73	1180	68	1470	224	5870
23	49	848	66	1120	78	1790	65	1230	73	1770	225	6070
24	49	848	63	1050	83	1840	59	1180	78	2110	229	6310
25	52	927	59	956	83	1820	59	1210	78	2320	239	6190
26	56	1010	51	785	73	1620	64	1310	75	2630	263	7170
27	59	1070	42	601	64	1420	74	1400	69	2610	312	8260
28	60	1080	56	756	56	1240	83	1430	63	2210	399	10300
29	59	1050	138	1790	49	1030	82	1330	81	2730	525	13200
30	49	815	116	1570	43	917	75	1050	---	---	717	17600
31	40	573	---	---	38	780	64	795	---	---	1100	26400
TOTAL	---	22603	---	29662	---	51650	---	23766	---	51158	---	194940
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	1330	30200	386	12000	791	41600	301	19200	75	1510	394	7020
2	982	21700	375	11600	1080	55400	493	27700	63	1140	320	5730
3	449	9970	253	7920	1120	56200	313	16100	58	990	259	4690
4	356	8140	292	9540	1030	51200	247	12700	60	967	206	4020
5	298	6650	355	12900	931	46300	273	13900	61	978	122	2260
6	325	7210	363	12900	763	37100	243	12300	60	962	93	1700
7	300	6580	339	11800	626	29400	246	12900	58	921	78	1400
8	261	5520	344	12400	565	26400	202	10300	54	844	68	1200
9	256	5420	354	13000	523	23600	134	6080	54	827	60	1030
10	274	5980	368	14600	465	21700	139	6000	61	894	56	875
11	305	6860	382	16400	395	18300	134	5570	73	1000	56	826
12	320	7140	379	15900	406	18500	123	5010	88	1220	60	928
13	325	7980	588	27800	1950	101000	126	5210	100	1370	66	1070
14	316	7760	739	36700	3440	238000	153	6200	105	1440	77	1310
15	291	7230	642	27900	2730	208000	156	6110	114	1580	98	1750
16	263	6560	592	21600	2420	209000	147	5440	6730	222000	142	3090
17	319	7890	473	15300	2290	205000	150	5310	12700	394000	225	5860
18	369	9250	289	8350	1140	96600	276	9390	6670	137000	332	8960
19	351	9290	231	6300	771	65400	179	5900	2060	40400	282	7610
20	345	9500	227	6250	575	46700	124	4020	604	13100	188	4920
21	337	9460	246	7570	665	52800	111	3540	503	10700	118	3100
22	319	9040	307	10200	665	55700	118	3540	527	11500	120	3150
23	319	9300	431	15000	696	63100	107	3090	581	12600	171	4850
24	348	10900	790	35800	801	74600	85	2340	648	13800	213	6380
25	375	12300	1870	129000	773	73000	81	2070	717	14400	218	6470
26	276	8720	1780	146000	568	50000	83	2050	729	14100	205	6140
27	225	6800	1400	127000	526	41600	86	2080	694	13200	191	5780
28	256	7810	1060	93000	841	59000	89	2070	642	11800	179	5360
29	311	9990	833	66600	472	31600	89	2010	581	10100	162	4810
30	377	12400	688	44200	297	20000	83	1880	587	10500	150	4370
31	---	---	808	45800	---	---	70	1490	527	9430	---	---
TOTAL	---	283550	---	1021330	---	2116800	---	221500	---	955273	---	116659

TOTAL LOAD FOR YEAR: 5088891 TONS.

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1979 TO JUNE 1980

DATE TIME	NOV 27,79 1300	APR 3,80 1600	JUN 25,80 1300
TOTAL CELLS/ML	1100	910	1800
DIVERSITY: DIVISION	0.6	0.8	1.1
.CLASS	0.6	0.8	1.1
..ORDER	1.2	1.5	2.1
...FAMILY	3.0	2.6	2.9
....GENUS	3.0	2.6	3.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...COELASTRACEAE						
....COELASTRUM	--	-	--	-	130	7
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	--	-	13	1
...SCENEDESMACEAE						
....ACTINASTRUM	--	-	--	-	100	6
....SCENEDESMUS	57	5	--	-	260	14
....TETRASTRUM	--	-	--	-	100	6
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	10	1	200#	22	130	7
...VOLVOCACEAE						
....PANDORINA	--	-	--	-	210	12
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	150	14	290#	31	150	9
....MELOSIRA	--	-	--	-	210	12
....STEPHANODISCUS	--	-	--	-	13	1
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	86	8	--	-	--	-
....RHOICOSPHENIA	10	1	--	-	--	-
...CYMBELLACEAE						
....CYMBELLA	67	6	18	2	--	-
...DIATOMACEAE						
....DIATOMA	10	1	18	2	--	-
....OPEPHORA	--	-	9	1	--	-
...FRAGILARIACEAE						
....ASTERIONELLA	--	-	--	-	100	6
....FRAGILARIA	--	-	--	-	100	6
....SYNEDRA	180#	16	120	13	13	1
...GOMPHONEMATACEAE						
....GOMPHONEMA	48	4	36	4	--	-
...NAVICULACEAE						
....NAVICULA	140	13	160#	18	26	1
...NITZSCHIACEAE						
....NITZSCHIA	300#	26	71	8	180	10
...SURIRELLACEAE						
....SURIRELLA	--	-	--	-	13	1
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	13	1
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	--	-	--	-	13	1
..HORMOGONALES						
...OSCILLATORIACEAE						
....SCHIZOTHRIX	57	5	--	-	--	-

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT--Continued

PHYTOPLANKTON ANALYSES, JULY 1980 TO SEPTEMBER 1980

DATE	JUL 31,80	AUG 28,80	SEP 26,80
TIME	1100	1400	1300
TOTAL CELLS/ML	10000	24000	15000
DIVERSITY: DIVISION	1.5	0.4	1.0
.CLASS	1.5	0.4	1.0
..ORDER	2.3	1.0	1.6
...FAMILY	2.7	1.1	1.8
....GENUS	3.5	1.8	2.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...OOCYSTACEAE						
....ANKISTRODESMUS	650	6	--	-	200	1
....DICTYOSPHAERIUM	100	1	--	-	--	-
....OOCYSTIS	550	5	800	3	810	5
....SELENASTRUM	50	0	--	-	--	-
...SCENEDESMACEAE						
....ACTINASTRUM	400	4	--	-	810	5
....CRUCIGENIA	200	2	--	-	--	-
....SCENEDESMUS	900	9	400	2	2900#	19
..TETRASPORALES						
...COCCOMYXACEAE						
....ELAKATOTHRIX	300	3	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	800	8	400	2	510	3
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	2000#	20	13000#	52	7900#	52
....MELOSIRA	1300	13	6600#	27	200	1
..PENNALES						
...ACHNANTHACEAE						
....COCCONEIS	--	-	200	1	--	-
...FRAGILARIACEAE						
....SYNEDRA	150	1	--	-	--	-
...NAVICULACEAE						
....NAVICULA	100	1	--	-	--	-
...NITZSCHIACEAE						
....NITZSCHIA	1000	10	3000	12	1500	10
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...OCHROMONADACEAE						
....OCHROMONAS	--	-	--	-	100	1
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	50	0	--	-	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	100	1
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....ANACYSTIS	1500	14	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	50	0	--		--	-
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...PERIDINIACEAE						
....PERIDINIUM	--	-	200	1	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

Smaller reservoirs in Missouri River basin in Montana

06012000 LIMA RESERVOIR.--Lat 44°39'16", long 112°21'54", in SW¼ sec.32, T.13 S., R.6 W., Beaverhead County, Hydrologic Unit 10020001, at Lima Dam on Red Rock River, 7 mi (11 km) northwest of Monida. DRAINAGE AREA, 570 mi^2 (1,476 km^2). PERIOD OF RECORD, April 1940 to current year. Records prior to October 1950, published only in WSP 1309, and those for April 1955, published only in WSP 1729. Records of daily elevations available in files of Helena district office. Nonrecording gage read twice daily. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

Reservoir is formed by earthfill dam with concrete spillway completed in 1902. Usable capacity, 84,050 acre-ft (104 hm^3) between elevation 6,537.30 ft (1,992.569 m), bottom of tunnel, and 6,582.7 ft (2,006.41 m), spillway crest. No dead storage. Figures given herein represent usable contents. Water is used for irrigation flood control, and recreation. Records furnished by Water Users Irrigation Co.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 85,220 acre-ft (105 hm^3) May 13, 1952, elevation, 6,582.88 ft (2,006.462 m); no usable storage Sept. 20-26, 1979.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 69,540 acre-ft (85.7 hm^3) June 19,20, elevation, 6,580.28 ft (2,005.669 m); minimum observed, 1,260 acre-ft (1.55 hm^3) Oct. 1, elevation, 6,546.88 ft (1,995.489 m).

06020500 RUBY RIVER RESERVOIR.--Lat 45°14'21", long 112°06'35", in NE¼NE¼SE¼ sec.8, T.7 S., R.4 W., Madison County, Hydrologic Unit 10020003, at dam on Ruby River, 6 mi (10 km) south of Alder. DRAINAGE AREA, 596 mi (1,544 km^2). PERIOD OF RECORD, July 1938 to April 1950, September 1954, May 1955, September to November 1955, and February to September 1960 (total contents), October 1960 to current year (usable contents). Records prior to October 1939, published only in WSP 1309, and those for September 1954, published only in WSP 1729. Elevations are determined by measuring from reference points in the middle and at or near the end of the month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

Reservoir is formed by earthfill dam with concrete spillway, completed in 1938. Usable capacity, 38,850 acre-ft (47.9 hm^3) between elevation 5,300.0 ft (1,615.44 m), bottom of tunnel, and 5,392.0 ft (1,643.48 m), spillway crest. Dead storage, 100 ft (123,000 m^3) below elevation 5,300.0 ft (1,615.44 m). Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Montana Department of Natural Resources and Conservation. REVISED RECORDS, WSP 1729: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 46,040 acre-ft (56.8 hm^3) Aug. 25, 1975, elevation, 5,399.0 ft (1,645.62 m); no storage at times in 1938, 1955, 1961.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 40,390 acre-ft (49.8 hm^3) June 2, elevation, 5,393.6 ft (1,643,97 m); minimum observed, 1,000 acre-ft (1.23 hm^3) Oct. 3 (estimated).

06036000 WILLOW CREEK RESERVOIR.--Lat 45°42'51", long 111°41'57", in NW¼NW¼NW¼ sec.35, T.1 S., R.1 W., Madison County, Hydrologic Unit 10020005, at dam on Willow Creek, 4 mi (6 km) east of Harrison. DRAINAGE AREA, 153 mi^2 (396 km^2). PERIOD OF RECORD, February 1938 to March 1958 (total contents), April 1958 to current year (usable contents). Records prior to October 1939, published only in WSP 1309 and November, December 1951, published only in WSP 1729. Prior to October 1949, published as Harrison Lake near Harrison. Elevations determined by measuring from reference marks in the middle and at or near the end of the month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

Reservoir is formed by earth and rockfill dam with concrete spillway completed in 1938. Usable capacity 17,730 acre-ft (21.9 hm^3) between elevation 4,666.5 ft (1,422.35 m), tunnel inlet, and 4,736.0 ft (1,443.53 m), spillway crest. Dead storage, 270 acre-ft (333,000 m^3) below elevation 4,666.5 ft (1,422.35 m). Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Montana Department of Natural Resources and Conservation. REVISED RECORDS, WSP 1629: 1958. WSP 1729: 1948(M), 1951-52, 1956-57.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 19,230 acre-ft (23.7 hm^3) June 30, 1963, elevation, 4,736.7 ft (1,443.75 m); minimum observed, 2,270 acre-ft (2.80 hm^3) Nov. 15, 1970, elevation, 4,705.0 ft (1,434.09 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 17,730 acre-ft (21.9 hm^3) Apr. 15, May 1, 15, June 1, 15, July 1, 15, elevation, 4,736.0 ft (1,443.53 m); minimum observed, 6,080 acre-ft (7.50 hm^3) Oct. 15, Nov. 1, elevation, 4,717 ft (1,437.7 m).

06038000 HEBGEN LAKE.--Lat 44°51'51", long 111°20'09", in SW¼NW¼ sec.23, T.11 S., R.3 E., Gallatin County, Hydrologic Unit 10020007, at Hebgen Dam on Madison River, 18 mi (29 km) northwest of West Yellowstone, and at mile 103 (166 km). DRAINAGE AREA, 904 mi^2 (2,341 km^2). PERIOD OF RECORD, January 1936 to current year. Records prior to October 1939, published only in WSP 1309. Figures of contents published in WSP 1629, 1709, and 1729 have been found to be in error and should not be used. Prior to Oct. 1, 1949, published as Hebgen Reservoir near West Yellowstone. Records of daily elevations since October 1955 on file in Helena district office. Nonrecording gage read about twice daily. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Montana Power Co.). Prior to earthquake of Aug. 17, 1959, datum of gage was 9.74 ft (2.968 m) higher, also at National Geodetic Vertical Datum of 1929.

Reservoir is formed by earthfill dam with concrete core and spillway completed in 1915, repaired in 1960 following severe earthquake of Aug. 17, 1959, which lowered dam 9.74 ft (2.968 m) and deformed reservoir area. Subsequent usable capacity, 377,500 acre-ft (465 hm^3) between elevation 6,473.00 ft (1,972.970 m), bottom of outlet tower, and 6,534.87 ft (1,991.828 m), spillway crest. Dead storage, 7,340 acre-ft (9.05 hm^3) below elevation 6,473.00 ft (1,972.970 m). Prior to Aug. 17, 1959, usable capacity, 344,700 acre-ft (425 hm^3) between 6,483.11 ft (1.976.052 m), bottom of outlet tower, and 6,544.61 ft (1,994.797 m), spillway crest. Dead storage, 7,340 acre-ft (9.05 hm^3) below elevation 6,473.00 ft (1,972.970 m). Observations of reservoir level prior and subsequent to earthquake indicate smaller increases in capacity than indicated by new capacity table. Figures given herein represent usable contents. Water is used for power and recreation. Records furnished by The Montana Power Co. REVISED RECORDS, WSP 1916: 1959-60.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 377,500 acre-ft (465 hm^3) on many days in 1962-64, 1970, 1972, 1974-76, 1978, 1980, elevation, 6,534.87 ft (1,991.828 m); minimum monthend, 670 acre-ft (826,000 m^3) Dec. 31. 1936 (by capacity table used prior to August 1959).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 377,500 acre-ft (465 hm^3) July 2-9, elevation, 6,534.87 ft (1,991.828 m); minimum observed, 257,800 acre-ft (318 hm^3) Apr. 18, 19, elevation, 6,524.48 ft (1,988.662 m).

Smaller reservoirs in Missouri River basin in Montana--Continued

06040500 ENNIS LAKE.--Lat 45°28'12", long 111°38'15", in NW¼SW¼ sec.20, T.4 S., R.1 E., Madison County, Hydrologic Unit 10020007, at Madison Dam on Madison River, 5 mi (8 km) northeast of McAllister. DRAINAGE AREA, 2,181 mi^2 (5,649 km^2). PERIOD OF RECORD, January 1936 to September 1975 (total contents), October 1975 to current year (usable contents). Records prior to October 1939, published only in WSP 1309. Prior to 1949, published as Madison Reservoir near McAllister. Records of daily elevations since October 1955 on file in Helena district office. Nonrecording gage read about twice daily. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Montana Power Co.).

Reservoir is formed by timber crib dam completed in 1900. Usable capacity, 41,020 acre-ft (50.6 hm^3) between elevation 4,826.5 ft (1,471.12 m), bottom of penstock, and 4,841.5 ft (1,475.69 m), top of flashboards. Dead storage, 1,040 acre-ft (1.28 hm^3) below elevation 4,826.5 ft (1,471.12 m). Not normally drawn below 4,831.0 ft (1,472.49 m), 6,810 acre-ft (8.40 hm^3). Figures given herein represent usable contents. Water is used for power and recreation. Records furnished by The Montana Power Co.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 40,830 acre-ft (50.3 hm^3) June 20, 1968, elevation, 4,841.45 ft (1,475.674 m); minimum observed, 2,600 acre-ft (3.21 hm^3) Mar. 31, 1937, elevation, 4,828.8 ft (1,471.82 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 39,410 acre-ft (48.6 hm^3) May 1, elevation, 4,841.35 ft (1,475.643 m); minimum observed, 33,390 acre-ft (41.2 hm^3) Jan. 28, elevation, 4,839.75 ft (1,475.156 m).

06049500 MIDDLE CREEK RESERVOIR.--Lat 45°29'18", long 110°58'42", in NW¼SW¼ sec.15, T.4 S., R.6 E., Gallatin County, Hydrologic Unit 10020008, at dam on Hyalite Creek, 14 mi (23 km) south of Bozeman. DRAINAGE AREA, 27.4 mi^2 (71.0 km^2). PERIOD OF RECORD, April 1951 to current year. Nonrecording gage read in the middle and at or near the end of month. Altitude of lake at full pond is about 6,700 ft (2,040.2 m), from topographic map.

Reservoir is formed by earthfill dam with conduit control works completed in 1951. Storage began in March 1951. Usable capacity, 8,030 acre-ft (9.90 hm^3) between gage height 125 ft (38.1 m), bottom of outlet, and 200.75 ft (61.189 m), spillway crest. Dead storage, 209 acre-ft (258,000 m^3) below gage height 125 ft (38.1 m). Figures given herein represent usable contents. Water is used for irrigation and municipal purposes. Records furnished by Montana Department of Natural Resources and Conservation.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 8,240 acre-ft (10.2 hm^3) May 31, 1966, gage height, 201.7 ft (61.48 m); minimum observed, 120 acre-ft (148,000 m^3) Oct. 18, 1965, gage height, 129.0 ft (39.32 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 8,080 acre-ft (9.96 hm^3) June 15, gage height, 201 ft (61.3 m); minimum observed, 2,680 acre-ft (3.30 hm^3) Nov. 14, gage height, 165.7 ft (50.50 m).

06064500 LAKE HELENA.--Lat 46°45'58", long 111°53'10", in SE¼SW¼ sec. 29, T.12 N., R.2 W., Lewis and Clark County, Hydrologic Unit 10030101, at Hauser Dam on Missouri River, 13 mi (21 km) northeast of Helena. DRAINAGE AREA, 610 mi^2 (1,580 km^2) above dam and control works on Prickly Pear Creek. PERIOD OF RECORD, May 1945 to current year. April to July 1953 scattered daily elevation and contents, published in WSP 1320-B. May to June 1964 daily elevations and contents, published in WSP 1840-B. Records of daily elevations since October 1955 on file in Helena district office. Nonrecording gage at Hauser Dam read hourly. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Montana Power Co.).

Gage heights collected at Hauser Dam are effective on Lake Helena at control dam. Prior to April 1945, contents of Lake Helena included with records of Hauser Lake. Since that date, a dam and control works has separated the two lakes to allow independent regulation of Lake Helena, if needed. Usable capacity, 10,450 acre-ft (12.9 hm^3) between elevation 3,624.00 ft (1,104.595 m), bottom of control works, and 3,635.00 ft (1,107.948 m), top of flashboards. No dead storage. Figures given herein represent usable contents. Water is used for recreation, wildlife, and power production through Hauser Dam. Records furnished by The Montana Power Co.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 11,790 acre-ft (14.5 hm^3) Aug. 2, 1960, Dec. 10, 1962, July 19, 20, Sept. 4, 1963, Aug. 15, 1968, Apr. 6, 1973, June 26, 1980, elevation, 3,635.60 ft (1,108.131 m); no storage Mar. 29 to Apr. 7, 1958, Feb. 12, 20, 1962, May 4-10, 1979.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 11,790 acre-ft (14.5 hm^3) June 26, elevation, 3,635.60 ft (1,108.131 m); minimum observed, 10,030 acre-ft (12.4 hm^3) Oct. 10, July 12, elevation, 3,634.80 ft (1,107.887 m).

06065000 HAUSER LAKE.--Lat 46°45'58", long 111°53'10", in SE¼SW¼ sec.29, T.12 N., R.2 W., Lewis and Clark County, Hydrologic Unit 10030101, at Hauser Dam on Missouri River, 1.6 mi (2.6 km) downstream from Prickly Pear Creek, 13 mi (21 km) northeast of Helena, and at mile 2,226.4 (3,582.3 km). DRAINAGE AREA, 16,876 mi^2 (43,709 km^2). PERIOD OF RECORD, January 1936 to current year. Records prior to October 1939, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. May to June 1964 daily elevations and contents, published in WSP 1840-B. Monthend contents prior to May 1945 include contents of Lake Helena, excluded thereafter. Records of daily elevations since October 1955 on file in Helena district office. Nonrecording gage read hourly. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Montana Power Co.).

Reservoir is formed by concrete dam completed in 1907; separated from Lake Helena in April 1945. Usable contents, 51,420 acre-ft (63.4 hm^3) between elevation 3,617.00 ft (1,102.462 m), bottom of tunnel, and 3,635.00 ft (1,107.948 m) top of flashboards. Dead storage, 46,810 acre-ft (57.7 hm^3) below elevation 3,617.00 ft (1,102.462 m). Prior to Nov. 28, 1949, usable capacity, 52,090 acre-ft (64.2 hm^3) at elevation 3,635.00 ft (1,107.948 m), decrease caused by construction of Canyon Ferry Dam in backwater of Hauser Dam. Not normally drawn below 3,621.00 ft (1,103.681 m), 8,870 acre-ft (10.9 hm^3). Figures given herein represent usable contents. Water is used for power and recreation. Records furnished by The Montana Power Co. REVISED RECORDS, WSP 1729: 1949-57.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed since May 1945, 53,630 acre-ft (66.1 hm^3) Aug. 2, 1960, Dec. 10, 1961, July 19, 20, Sept., 4, 1963, Aug. 15, 1968, Apr. 6, 1973, June 26, 1980, elevation, 3,635.60 ft (1,108.131 m); no storage Jan. 31, Feb. 29, 1936.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 53,630 acre-ft (66.1 hm^3) June 26, elevation, 3,633.60 ft (1,108.131 m); minimum observed, 50,680 acre-ft (62.5 hm^3) Oct. 10, July 12, elevation, 3,634.80 ft (1,107.887 m).

Smaller reservoirs in Missouri River basin in Montana--Continued

06066000 HOLTER LAKE.--Lat 46°59'28", long 112°00'17", on line between SE¼ sec.5 and NE¼ sec.8, T.14 N., R.3 W., Lewis and Clark County, Hydrologic Unit 10030101, at Holter Dam on Missouri River, 3.3 mi (5.3 km) east of Wolf Creek, and at mile 2,204 (3,546 km). DRAINAGE AREA, 17,149 mi^2 (44,416 km^2). PERIOD OF RECORD, January 1936 to current year. Records prior to October 1939, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. May to June 1964 daily elevations and contents, published in WSP 1840-B. Records of daily elevations since October 1955 on file in Helena district office. Prior to 1950, published as Holter Reservoir near Wolf Creek. Nonrecording gage read three times daily. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Montana Power Co.).

Reservoir is formed by concrete dam completed in 1918. Usable capacity, 81,920 acre-ft (101 hm^3) between elevation 3,543.00 ft (1,079.906 m), bottom of tunnel, and 3,564.00 ft (1,086.307 m), top of flashboards. Dead storage, 158,500 acre-ft (195 hm^3) below elevation 3,543.00 ft (1,079.906 m). Not normally drawn below 3,548.00 ft (1,081.430 m), 16,660 acre-ft (20.5 hm^3). Figures given herein represent usable contents. Water is used for power and recreation. Records furnished by The Montana Power Co.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 85,250 acre-ft (105 hm^3) June 19, 1970, elevation, 3,564.70 ft (1,086.521 m); no storage Feb. 29, Dec. 31, 1936.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 82,200 acre-ft (101 hm^3) June 3, elevation, 3,564.06 ft (1,086.325 m); minimum observed, 13,630 acre-ft (16.8 hm^3) May 6, elevation, 3,547.10 ft (1,081.156 m).

06075000 SMITH RIVER RESERVOIR.--Lat 46°37'27", long 110°44'48", near center of south line of sec.17, T.10 N., R.8 W., Meagher County, Hydrologic Unit 10030103, at dam on Smith River, 9 mi (15 km) northeast of White Sulphur Springs. DRAINAGE AREA, 72.3 mi^2 (187.3 km^2). PERIOD OF RECORD, April 1938 to September 1950 (scattered records 1947-50) and April to October 1959 (total contents), November 1959 to current year (usable contents). Records for some periods published only in WSP 1309 and for April 1959, published only in WSP 1729. Elevations determined by measuring from reference marks at or near middle and end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

Reservoir is formed by earthfill dam with concrete spillway completed in 1936. Usable capacity, 10,650 acre-ft (13.1 hm^3) between elevation, 5,415.0 ft (1,650.49 m), bottom of outlet, and 5,486.0 ft (1,672.13 m), spillway crest. Dead storage, 52 acre-ft (64,100 m^3) below elevation 5,415.0 ft (1,650.49 m). Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Montana Department of Natural Resources and Conservation. REVISED RECORDS, WSP 1729: 1960.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 11,650 acre-ft (14.4 hm^3) June 1, 1978, elevation, 5,489.1 ft (1,673.08 m); minimum observed, 90 acre-ft (111,000 m^3) Sept 12, 1973, elevation, 5,423.9 ft (1,653.20 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 10,480 acre-ft (12.9 hm^3) June 15, elevation, 5,485.3 ft (1,671.92 m); minimum observed, 4,290 acre-ft (5.29 hm^3) Sept. 30 (interpolated).

06079500 GIBSON RESERVOIR.--Lat 47°36'09", long 112°45'39", in NE¼NW¼SE¼ sec.4, T.21 N., R.9 W., Teton County, Hydrologic Unit 10030104, at Gibson Dam on Sun River, 19 mi (31 km) northwest of Augusta, and at mile 99.9 (160.7 km). DRAINAGE AREA, 575 mi^2 (1,489 km^2). PERIOD OF RECORD, January 1930 to current year. Records prior to October 1940, published only in WSP 1309. April to July 1953 scattered daily elevations and contents published in WSP 1320-B. May to June 1964 daily elevations and contents, published in WSP 1840-B. Nonrecording gage read daily. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service).

Reservoir is formed by concrete dam with glory-hole spillway completed in 1929. Usable capacity, 99,060 acre-ft (122 hm^3) between elevation 4,557.5 ft (1,389.13 m), bottom of outlet, and 4,724.0 ft (1,439.88 m), top of glory-hole, by capacity table effective Aug. 1, 1975; see previous reports for superseded figures. Dead storage, 16 acre-ft (19,700 m^3) below elevation 4,557.5 ft (1,389.13 m). Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD: Maximum contents, 116,400 acre-ft (144 hm^3) June 8, 1964, elevation, 4,732.23 ft (1,442.384 m), from floodmark, of which 11,600 acre-ft (14.3 hm^3) was uncontrolled storage, by capacity table used Oct. 1, 1965, to July 30, 1975; minimum observed, 11 acre-ft (13,600 m^3) Oct. 13, 1936, elevation, 4,560.9 ft (1,390.16 m), by capacity table used prior to 1939.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 99,050 acre-ft (122 hm^3) June 28, elevation 4,724.0 ft (1,439.88 m); minimum observed, 9,250 acre-ft (1.14 hm^3) Oct. 1, elevation, 4,618.1 ft (1,407.60 m)

06080500 PISHKUN RESERVOIR.--Lat 47°40'36", long 112°29'48", in W½ sec.10, T.22 N., R.7 W., Teton County, Hydrologic Unit 10030104, at dam 14 mi (23 km) northwest of Augusta. PERIOD OF RECORD, January 1936 to current year. Records prior to October 1940, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. Nonrecording gage read one or more times a month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service).

This is an offstream reservoir formed by two earthfill dams completed in 1919. Stored water is diverted from Sun River in sec.36, T.22 N., R.9 W., 18 mi (29 km) northwest of Augusta. Usable capacity, 32,050 acre-ft (39.5 hm^3) between elevation 4,342.0 ft (1,323.44 m), bottom of outlet, and 4,371.0 ft (1,332.28 m) maximum pool. Dead storage, 16,400 acre-ft (20.2 hm^3) below elevation 4,342.0 ft (1,323.44 m). Prior to 1940, usable capacity varied from 3,600 to 21,750 acre-ft (4.44 to 26.8 hm^3). Figures given herein represent usable contents. Water is used for irrigation, recreation, and wildlife. Records furnished by Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 32,700 acre-ft (40.3 hm^3) July 4-6, 1953, elevation, 4,371.4 ft (1,332.40 m); no storage October 1939 to March 1940, Oct. 31, 1967.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 32,050 acre-ft (39.5 hm^3) May 15, elevation, 4,371.0 ft (1,332.28 m); minimum observed, 7,130 acre-ft (8.79 hm^3) Sept. 19, elevation, 4,350.8 ft (1,326.12 m).

06082000 WILLOW CREEK RESERVOIR.--Lat 47°32'48", long 112°25'45", in SW¼NW¼ sec.30, T.21 N., R.6 W., Lewis and Clark County, Hydrologic Unit 10030104, at dam on Willow Creek, 4 mi (6 km) northwest of Augusta. PERIOD OF RECORD, January 1936 to September 1960 (total contents), October 1960 to current year (usable contents). Records prior to October 1940, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. Nonrecording gage read one or more times a month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by U.S. Water and Power Resources Service).

Reservoir is formed by earthfill dam completed in 1911. Usable capacity, 32,230 acre-ft (39.7 hm^3) between elevation 4,085.28 ft (1,245.193 m), bottom of outlet, and 4,142.0 ft (1,262.48 m), maximum pool. Dead storage, 67 acre-ft (82,600 m^3) below elevation 4,085.28 ft (1,245.193 m). Prior to 1941, total capacity was 16,700 acre-ft (20.6 hm^3). Supplemental water diverted from Sun River in sec.36, T.22 N., R.9 W., 18 mi (29 km) northwest of Augusta. Figures given herein represent usable contents. Water is used for irrigation, recreation, and wildlife. Records furnished by U.S. Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 35,230 acre-ft (43.4 hm^3) June 22, 1975, elevation, 4,144.0 ft (1,263.09 m); no storage July 31, Aug. 31, 1940.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 30,640 acre-ft (37.8 hm^3) June 29, elevation, 4,140.9 ft (1,262.15 m); minimum observed, 17,930 acre-ft (22.1 hm^3) Aug. 21, elevation, 4,131.1 ft (1,259.16 m).

06083000 NILAN RESERVOIR.--Lat 47°29'06", long 112°32'24", in S½NE¼ sec.18, T.20 N., R.7 W., Lewis and Clark County, Hydrologic Unit 10030104, at north dam, lat 47°28'18", long 112°30'54", in SE¼NE¼ sec 20, T.20 N., R.7 W., at east dam, 6 mi (10 km) west of Augusta. PERIOD OF RECORD, December 1951 to current year. April to July 1953 scattered daily contents, published in WSP 1320-B. Records for November 1958 to March 1959, published only in WSP 1729. Nonrecording gage read at middle and end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

This is an offstream reservoir formed by two earthfill dams completed in 1951. Usable capacity, 10,090 acre-ft (12.4 hm^3) between elevation 4,402.0 ft (1,341.73 m), bottom of outlet, and 4,442.5 ft (1,354.07 m), spillway crest. Dead storage, 900 acre-ft (1.11 hm^3) below elevation 4,402.0 ft (1,341.73 m), not including contents of old lake. Stored water is diverted from Smith Creek in NE¼ sec.4, T.19. N., R.8 W., and from Ford Creek in SW¼ sec.26, T.20 N., R.8 W., at points 12 mi (19 km) and 10 mi (16 km), respectively, southwest of Augusta. Figures given herein represent total contents. Water is used for irrigation and recreation. Records furnished by Montana Department of Natural Resources and Conservation.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 13,520 acre-ft (16.7 hm^3) May 31, 1963, elevation, 4,448.5 ft (1,355.90 m); minimum observed since first filling, 104 acre-ft (128,000 m^3) Sept. 30, Oct. 1, 1973, computed on basis of canal inflow-outflow study.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 10,090 acre-ft (12.6 hm^3) June 15, 30, July 15, elevation, 4,442.5 ft (1,354.07 m); minimum observed, 535 acre-ft (659,700 m^3) Oct. 1 (interpolated).

06090900 LOWER TWO MEDICINE LAKE.--Lat 48°29'39", long 113°15'49", in NE¼ sec.34, T.32 N., R.13 W., Glacier County, Hydrologic Unit 10030201, at dam on Two Medicine River, 4 mi (6 km) northwest of East Glacier. DRAINAGE AREA, 50.2 mi^2 (130.0 km^2). PERIOD OF RECORD, September 1938 to June 1964 (dam destroyed), December 1967 to current year. Figures of no storage prior to April 1961 may be in error and should be used with caution. Records prior to October 1940, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. May to June 1964 occasional elevations and contents, published in WSP 1840-B. Prior to 1942, published as Two Medicine Lake near East Glacier. Nonrecording gage read at or near end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by U.S. Water and Power Resources Service) and is 8.22 ft (2.505 m) higher than datum for destroyed dam (levels by Bureau of Indian Affairs).

Reservoir is formed by earthfill dam with concrete spillway and control works; construction began in September 1965, completed in November 1967. Storage began Dec. 1, 1967. Former dam 250 ft (76.2 m) upstream completed in 1913 and destroyed by flood of June 8, 1964. Usable capacity at new dam, 11,880 acre-ft (14.6 hm^3) between elevation 4,861.0 ft (1,481.63 m), bottom of outlet, and 4,882.0 ft (1,488.03 m), spillway crest. Dead storage, about 2,000 acre-ft (2.47 hm^3) near upper end of reservoir below elevation 4,861.0 ft (1,481.63 m). Prior to June 8, 1964, at site and datum then in use, usable capacity was 16,620 acre-ft (20.5 hm^3) between elevation 4,848.00 ft (1,477.670 m) elevation of natural outlet, and 4,878.0 ft (1,486.81 m), spillway crest. Dead storage was unknown. Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Bureau of Indian Affairs. REVISED RECORDS, WSP 1729: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 20,930 acre-ft (25.8 hm^3) June 8, 1964, elevation, 4,883.8 ft (1,488.58 m), datum and capacity table then in use, dam overtopped; possibly no storage at times in some years.

EXTREMES FOR CURRENT YEAR: No data available for current year.

06093000 FOUR HORNS LAKE.--Lat 48°20'33", long 112°41'48", in SW¼NW¼SE¼ sec.19, T.30 N., R.8 W., Glacier County, Hydrologic Unit 10030201, at dam 7 mi (11 km) northeast of Heart Butte. PERIOD OF RECORD, September 1938 to current year. Records prior to October 1940, published only in WSP 1309 and those for December 1958 to August 1959, published only in WSP 1729. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. Prior to 1950, published as Four Horns Reservoir near Heart Butte. Nonrecording gage read at or near end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Bureau of Indian Affairs).

This is an offstream reservoir formed by earthfill dam completed in 1932. Stored water is diverted from Badger Creek in NE¼ sec.24, T.30 N., R.10 W., 5 mi (8 km) north of Heart Butte. Usable capacity, 19,250 acre-ft (23.7 hm^3) between elevation 4,081.0 ft (1,243.89 m), gage sill, and 4,115.0 ft (1,254.25 m), maximum design level. No dead storage. Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by Bureau of Indian Affairs.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 16,320 acre-ft (20.1 hm^3) Aug. 5, 1958, elevation, 4,111.6 ft (1,253.22 m); minimum observed, 2,840 acre-ft (3.50 hm^3) July 31, 1949, elevation, 4,090.0 ft (1,246.63 m).

EXTREMES FOR CURRENT YEAR: No data available for this year.

06094000 SWIFT RESERVOIR.-- Lat 48°09'53", long 112°52'20", in NE¼ sec.27, T.28 N., R.10 W., Pondera County, Hydrologic Unit 10030201, at Swift Dam on Birch Creek, 17 mi (27 km) west of Dupuyer. DRAINAGE AREA, 75.3 mi^2 (195.0 km^2). PERIOD OF RECORD, January 1936 to June 1964 (dam destroyed), June 1967 to current year. Records prior to October 1940, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. April to June 1964 scattered daily elevations and contents, published in WSP 1840-B. Prior to 1950, published as Birch Creek Reservoir near Dupuyer. Nonrecording gage read monthly. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service) and is 63.7 ft (19.42 m) lower than datum for destroyed dam (levels by Pondera County Canal and Reservoir Co.).

Reservoir is formed by concrete arch dam; construction began in 1965; completed in 1967. Storage began June 22, 1967. Former dam, in same location, was built about 1915 and destroyed by flood of June 8, 1964. Usable capacity at new dam, 29,980 acre-ft (37.0 hm^3) between elevation 4,748.0 ft (1,477.19 m), bottom of outlet, and 4,883.5 ft (1,488.49 m), spillway crest. Dead storage, 35 acre-ft (43,200 m^3) below elevation 4,808.2 ft (1,465.54 m), bottom of outlet, and 4,947.0 ft (1,507.85 m), spillway crest. Dead storage was negligible. Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Pondera County Canal and Reservoir Co. REVISED RECORDS, WSP 1729: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 34,300 acre-ft (42.3 hm^3) June 8, 1964, elevation, 4,956.3 ft (1,510.68 m), datum then in use; minimum observed, 20 acre-ft (24,700 m^3) Sept. 30, 1952, elevation, 4,810.0 ft (1,466.09 m), datum then in use.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 30,280 acre-ft (37.3 hm^3) May 31, elevation, 4,884.2 ft (1,488.70 m); minimum observed, 6,410 acre-ft (7.90 hm^3) Oct. 31, elevation, 4,816.4 ft (1,468.04 m).

06095500 LAKE FRANCES.--Lat 48°15'48", long 112°12'24", in NE¼NE¼ sec.23, T.29 N., R.5 W., Pondera County, Hydrologic Unit 10030203, at dam 3 mi (5 km) southeast of Valier. PERIOD OF RECORD, January 1936 to current year. Records prior to October 1940, published only in WSP 1309. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. Nonrecording gage read at or near end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Pondera County Canal and Reservoir Co.).

This is an offstream reservoir formed by earthfill dam completed about 1931. Stored water is diverted from Birch Creek in sec.28, T.29 N., R.8 W., and Dupuyer Creek in sec.28, T.29 N., R.6 W., at points 20 mi (32 km) and 6 mi (10 km), respectively, west of dam. Usable capacity, 111,900 acre-ft (138 hm^3) between elevation 3,787.40 ft (1,154,400 m), outlet sill, and 3,816.00 ft (1,163.117 m), maximum design level. Dead storage is estimated at 5,000 acre-ft (6.17 hm^3) below elevation 3,787.40 ft (1,154.400 m). Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Pondera County Canal and Reservoir Co.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 111,400 acre-ft (137 hm^3) June 4, 1953, elevation, 3,815.92 ft (1,163.092 m); minimum observed, 4,560 acre-ft (5.62 hm^3) Jan. 31, 1938, elevation, 3,789.36 ft (1,154.997 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 103,400 acre-ft (127 hm^3) June 30, elevation, 3,814.43 ft (1,162.638 m); minimum observed, 62,310 acre-ft (76.8 hm^3) Mar. 31, elevation, 3,805.97 ft (1,160.060 m).

06110500 ACKLEY LAKE.--Lat 46°57'19", long 109°55'55", in SE¼ sec.22, T.14 N., R.14 E., Judith Basin County, Hydrologic Unit 10040103, at dam 4 mi (6 km) southwest of Hobson. PERIOD OF RECORD, June 1938 to September 1960 (total contents), October 1960 to current year (usable contents). Records prior to October 1939, published only in WSP 1309. Nonrecording gage read usually at or near middle and end of month.

This is an offstream reservoir formed by earthfill dam with concrete conduits completed in 1938. Water is diverted from Judith River near center of east line of sec.14, T.14 N., R.13 E., 7.5 mi (12.1 km) west of Hobson. Usable capacity, 5,820 acre-ft (7.18 hm^3) between gage height 45.0 ft (13.72 m), bottom of outlet, and 82.67 ft (25.198 m), spillway crest. Dead storage, 325 acre-ft (401,000 m^3) below gage height 45.0 ft (13.72 m). Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Montana Department of Natural Resources and Conservation.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 6,150 acre-ft (7.58 hm^3) Sept. 1, 1975, gage height, 84.0 ft (25.60 m); minimum observed, 893 acre-ft (1.10 hm^3) Apr. 1, 1974, gage height, 55.0 ft (16.76 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 5,400 acre-ft (6.66 hm^3) July 15, elevation, 2,981.0 ft (908.61 m); minimum observed, 2,760 acre-ft (3.40 hm^3) Sept. 30 (interpolated).

06116500 BAIR RESERVOIR.--Lat 46°34'47", long 110°33'24", in SE¼SE¼SW¼ sec.35, T.10 N., R.9 E., Meagher County, Hydrologic Unit 10040201, at dam on North Fork Musselshell River, 1 mi (2 km) northwest of Delpine and 14 mi (23 km) northwest of Martinsdale. DRAINAGE AREA, 48.6 mi^2 (125.9 km^2). PERIOD OF RECORD, November 1939 to September 1960 (total contents), winter records incomplete some years during 1951-59, October 1960 to current year (usable contents). Records for November 1939, published only WSP 1309. Prior to October 1969, published as "Durand Reservoir." Nonrecording gage read at or near middle and end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

Reservoir is formed by earthfill dam with concrete spillway completed in 1939. Usable capacity, 7,000 acre-ft (8.63 hm^3) between elevation 5,253.2 ft (1,601.18 m), bottom of inlet, and 5,325.0 ft (1,623.06 m), spillway crest. Dead storage, 24 acre-ft (29,600 m^3) below elevation 5,253.2 ft (1,601.18 m). Supplemental water can be diverted from Checkerboard Creek in S½ sec.5, T.9 N., R.9 E., but seldom used. Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Montana Department of Natural Resources and Conservation. REVISED RECORDS, WSP 1729: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 7,390 acre-ft (9.11 hm^3) July 1, 1979, elevation, 5,326.3 ft (1,623.46 m); no storage July 31, 1961.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 7,060 acre-ft (8.70 hm^3) May 15, June 15, elevation, 5,325.2 ft (1,623.12 m); minimum observed, 3,460 acre-ft (4.27 hm^3) Sept. 30 (interpolated).

Smaller reservoirs in Missouri River Basin in Montana--Continued

06119000 **MARTINSDALE RESERVOIR**.--Lat 46°27'17", long 110°16'02", in NE¼NW¼SE¼ sec.18, T.8 N., R.12 E., Wheatland County, Hydrologic Unit 10040201, at north dam 2 mi (3 km) east of Martinsdale, lat 46°26'33", long 110°15'30", in NE¼ sec.20, T.8 N., R.12 E., at south dam 3 mi (5 km) southeast of Martinsdale. PERIOD OF RECORD, November 1939 to September 1960 (total contents), winter records incomplete for some years during 1951-59, October 1960 to current year (usable contents). Records for November 1939, published only in WSP 1309. Nonrecording gage read at or near middle and end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

This is an offstream reservoir formed by two earthfill dams with concrete conduit and spillway completed in 1939. Stored water is diverted from South Fork Musselshell River in N½ sec.15, T.8 N., R.11 E., at a point 1 mi (2 km) west of Martinsdale. Usable capacity, 23,110 acre-ft (28.5 hm^3) between elevation 4,714.67 ft (1,437.031 m), bottom of outlet, and 4,779.0 ft (1,456.64 m), spillway crest. Dead storage, 73 acre-ft (90,000 m^3) below elevation 4,714.67 ft (1,437.031 m). South Fork Musselshell River flow above diversion is supplemented at times with return flow from lands irrigated by water diverted from North Fork Musselshell River. Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Montana Department of Natural Resources and Conservation.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 23,910 acre-ft (29.5 hm^3) June 15, 1980, elevation, 4,770.84 ft (1,456.895 m); no storage July 31, Aug. 31, Sept. 30, Oct. 31, 1961.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 23,910 acre-ft (29.5 hm^3) June 15, elevation, 4,779.84 ft (1,456.895 m); minimum observed, 8,760 acre-ft (10.8 hm^3) Sept. 14, elevation, 4,760.32 ft (1,450.946 m).

06122500 **DEADMAN'S BASIN RESERVOIR**.--Lat 46°20'24", long 109°24'35", in NE¼ sec.25, T.7 N., R.18 E., Wheatland County, Hydrologic Unit 10040201, at dam 6 mi (10 km) east of Shawmut. PERIOD OF RECORD, June 1941 to June 1955 (some contents may be total), July 1955 to current year (usable contents), incomplete 1942, 1951-59. Nonrecording gage read at or near middle and end of month. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Montana Department of Natural Resources and Conservation).

This is an offstream reservoir formed by earthfill dam completed in 1941. Stored water is diverted from Musselshell River in NW¼ sec.8, T.7 N., R.17 E., 6 mi (10 km) northwest of Shawmut. Usable capacity, 72,220 acre-ft (89.0 hm^3) between elevation 3,872.0 ft (1,180.19 m), bottom of outlet, and 3,921.0 ft (1,195.12 m), maximum design level. Prior to 1958, usable capacity was 52,500 acre-ft (64.7 hm^3) at elevation 3,911.0 ft (1,192.07 m). Dead storage, 4,600 acre-ft (5.67 hm^3) below elevation 3,872.0 ft (1,189.19 m). Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Montana Department of Natural Resources and Conservation.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 73,240 acre-ft (90.3 hm^3) June 7, 1978, elevation, 3,921.5 ft (1,195.27 m); minimum observed, 3,290 acre-ft (4.05 hm^3) Oct. 31, 1961, elevation, 3,867.3 ft (1,178.75 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 59,000 acre-ft (72.7 hm^3) July 22, elevation, 3,914.4 ft (1,193.11 m), but probably was higher during spring months; minimum observed, 43,330 acre-ft (53.4 hm^3) Sept. 17, elevation, 3,906.0 ft (1,190.55 m), but probably was less during winter months.

136500 **FRESNO RESERVOIR**.--Lat 48°36'04", long 109°56'45", in SE¼ sec.19, T.33 N., R.14 E., Hill County, Hydrologic Unit 10050002, at dam on Milk River, 13 mi (21 km) west of Havre and at mile 440 (708 km). DRAINAGE AREA, 3,766 mi^2 (9,754 km^2) of which 670 mi^2 (1,735 km^2) is probably noncontributing. PERIOD OF RECORD, January 1940 to current year. Records prior to September 1940, published only in WSP 1309. March to May, 1952 daily elevations and contents, published in WSP 1260-B. April to July 1953 scattered daily elevations and contents, published in WSP 1320-B. Records of daily contents in files of Helena district office. Nonrecording gage read daily. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by U.S. Water and Power Resources Service).

Reservoir is formed by earthfill dam with concrete spillway completed in 1939. Usable capacity, 127,200 acre-ft (157 hm^3) between elevation 2,530.00 ft (771.144 m), invert of tunnel inlet, and 2,575.00 ft (784.860 m), spillway crest. Elevation of maximum water surface is 2,591.00 ft (789.737 m), 243,600 acre-ft (300 hm^3). Crest of dam is 2,595.00 ft (790.956 m). There are no gates in the spillway. Dead storage, 1,860 acre-ft (2.29 hm^3) below elevation 2,530.00 ft (771.144 m). Figures given herein represent usable contents. Water is used for irrigation and recreation. Records furnished by U.S. Water and Power Resources Service. REVISED RECORDS, WSP 1729: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 154,000 acre-ft (190 hm^3) Apr. 3, 1952, elevation, 2,579.35 ft (786.186 m), of which 26,800 acre-ft (33.0 hm^3) was uncontrolled storage; no storage Feb. 18 to Mar. 6, 1950.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 110,700 acre-ft (136 hm^3) Apr. 29, elevation, 2,572.00 ft (783.946 m); minimum observed, 24,410 acre-ft (30.1 hm^3) Aug. 19, elevation, 2,547.50 ft (776.478 m).

6155000 **NELSON RESERVOIR**.--Lat 48°31'42", long 107°31'00", in SE¼ sec.14, T.32 N., R.32 E., Phillips County, Hydrologic Unit 10050004, at dam 10 mi (16 km) northwest of Saco. PERIOD OF RECORD, March 1928 to current year. Records prior to October 1940, published only in WSP 1309. Nonrecording gage read on first and last day of month and more often during high stages. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by U.S. Water and Power Resources Service).

This an offstream reservoir formed by earthfill dam completed in 1922. Stored water is diverted from Milk River at Dodson Dam in SE¼ sec.26, T.31 N., R.26 E., 6 mi (10 km) west of Dodson. Usable capacity, 66,800 acre-ft (82.4 hm^3) between elevation 2,200 ft (670.56 m), gage sill, and 2,223.0 ft (677.57 m), maximum design level. Dead storage, 18,650 acre-ft (23.0 hm^3) below elevation 2,200.0 ft (67.56 m). Reservoir has never been operated to maximum capacity. Figures given herein represent usable contents. Water is used for irrigation, recreation, and wildlife. Records furnished by U.S. Water and Power Resources Service.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 60,570 acre-ft (74.7 hm^3) July 12-14, 1965, elevation, 2,221.6 ft (677.14 m); minimum observed, 4,600 acre-ft (5.67 hm^3) Mar. 31, 1937, elevation, 2,202.6 ft (671.35 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 48,660 acre-ft (60.0 hm^3) Apr. 30, elevation, 2,218.7 ft (676.26 m); minimum observed, 18,250 acre-ft (22.5 hm^3) Aug. 8, 12, elevation, 2,209.0 ft (673.30 m).

Smaller reservoirs in Missouri River Basin in Montana--Continued

06204000 **MYSTIC LAKE**.--Lat 45°13'30", long 109°45'36", in sec.9, T.7 S., R.16 E., (unsurveyed), Stillwater County, Hydrologic Unit 10070005, at dam on West Rosebud Creek, 15 mi (24 km) southwest of Roscoe and 25 mi (40 km) southwest of Absarokee. DRAINAGE AREA, 46.9 mi^2 (121.5 km^2). PERIOD OF RECORD, January 1936 to current year. Records prior to September 1939, published only in WSP 1309. Record of daily elevations since October 1965 available in files of Helena district office. Water-stage recorder. Prior to October 1965, only monthend figures furnished. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by The Montana Power Co.).

Reservoir is formed by thin-section reinforced concrete arch dam completed in 1925. Usable capacity, 21,000 acre-ft (25.9 hm^3) between elevation 7,612.00 ft (2,320.138 m), minimum operating level, and 7,673.50 ft (2,338.883 m), top of 3.5 ft (1.07 m) stop logs. No dead storage. Figures given herein represent usable contents. Water is used for power development and recreation. Records furnished by The Montana Power Co. REVISED RECORDS, WSP 1916: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 21,070 acre-ft (26.0 hm^3) July 31, 1947, elevation, 7,673.68 ft (2,338.938 m); minimum observed, 260 acre-ft (321,000 m^3) Apr. 4, 1938, elevation, 7,612.93 ft (2,320.421 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 20,860 acre-ft (25.7 hm^3) July 26, elevation, 7,673.18 ft (2,338.785 m); minimum observed, 1,390 acre-ft (1.71 hm^3) Apr. 23, elevation, 7,616.85 ft (2,321.616 m).

06212000 **COONEY RESERVOIR**.--Lat 45°26'47", long 109°11'57", in N½NE¼ sec.36, T.4 S., R.20 E., Carbon County, Hydrologic Unit 10070006, at dam on Red Lodge Creek, 1 mi (2 km) upstream from Cottonwood Creek and 6.6 mi (10.6 km) west of Boyd. DRAINAGE AREA, 206 mi^2 (534 km^2). PERIOD OF RECORD, May 1937 to September 1960 (total contents), incomplete 1954-60, October 1960 to current year (usable contents). Records prior to October 1939, published only in WSP 1309. Nonrecording gage read at or near middle and end of month. Datum of gage is at National Geodetic Vertical Datum of 1929.

Reservoir is formed by earthfill dam with concrete spillway completed in 1936. Usable capacity, 27,400 acre-ft (33.8 hm^3) between elevation 4,175.0 ft (1,272.54 m). bottom of tunnel, and 4,250.0 ft (1,295.40 m), top of 4 ft (1.2 m) flashboards. Dead storage, 120 acre-ft (148,000 m^3) below elevation 4,175.0 ft (1,272.54 m). Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Montana Department of Natural Resources and Conservation. REVISED RECORDS, WSP 1729: Drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 26,990 acre-ft (33.3 hm^3) June 15, 1967, elevation, 4,249.5 ft (1,295.25 m); minimum observed, 120 acre-ft (148,000 m^3) Sept. 30, 1960, elevation, 4,175.0 ft (1,272.54 m).

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 20,450 acre-ft (25.2 hm^3) May 15, elevation, 4,241.27 ft (1,292.739 m); minimum observed, 11,220 acre-ft (12.8 hm^3) Oct. 16, elevation, 4,226.19 ft (1,288.143 m).

06307000 **TONGUE RIVER RESERVOIR**.--Lat 45°07'48", long 106°46'13", in SE¼SE¼NE¼ sec.13, T.8 W., R.40 E., Big Horn County, Hydrologic Unit 10090101, at dam on Tongue River, 4 mi (6 km) upstream from Post Creek, 7 mi (11 km) northeast of Decker, and at mile 162.8 (261.9 km). DRAINAGE AREA, 1,770 m^2 (4,584 km^2). PERIOD OF RECORD, December 1938 to current year. Records prior to September 1939, published only in WSP 1309 and those for January, February 1956, published only in WSP 1729. Nonrecording gage read daily but only weekly readings supplied. Datum of gage is at National Geodetic Vertical Datum of 1929 (levels by Water and Power Resources Service).

Reservoir is formed by earthfill dam with concrete spillway completed in May 1939. Usable capacity, 68,040 acre-ft (83.9 hm^3) between elevation 3,374.4 ft (1,028.52 m), bottom of outlet, and 3,424.4 ft (1,043.76 m), spillway crest. Prior to October 1947, usable contents was 73,950 acre-ft (91.2 hm^3) at same elevations, due to sedimentation study. Dead storage, 1,400 acre-ft (1.73 hm^3) below elevation, 3,374.4 ft (1,028.52 m). Figures given herein represent usable contents. Water is used for irrigation. Records furnished by Montana Department of Natural Resources and Conservation. REVISED RECORDS. WSP 1309: 1947-50. WSP 1729: 1951, drainage area.

EXTREMES FOR PERIOD OF RECORD: Maximum contents observed, 77,040 acre-ft (95.0 hm^3) May 26, 1978, elevation, 3,426.8 ft (1,044.49 m), from extention of rating curve; no storage October 1939 to February 1940.

EXTREMES FOR CURRENT YEAR: Maximum contents observed, 62,020 acre-ft (76.5 hm^3) June 16, elevation, 3,422.6 ft (1,943.21 m); minimum observed, 9,060 acre-ft (11.2 hm^3) Sept. 30, elevation, 3,392.7 ft (1,034.09 m).

Smaller reservoirs in Missouri River basin in Montana--Continued

Monthend contents, in acre-feet, water year October 1979 to September 1980

Date	Lima Reservoir	Ruby River Reservoir	Willow Creek Reservoir	Hebgen Lake	Ennis Lake	Middle Creek Reservoir	Lake Helena
Sept. 30	1,170	d 1,000	b 6,500	326,800	36,630	3,170	10,890
Oct. 31	4,670	a 4,870	b 6,080	308,100	38,150	a2,740	10,890
Nov. 30	b 9,640	a 8,790	b 7,220	280,800	34,240	a2,710	10,890
Dec. 31	11,400	a13,290	b 9,510	277,000	34,690	a2,790	11,110
Jan. 31	b12,920	a15,140	b11,800	277,500	34,240	a2,950	11,340
Feb. 29	a14,280	a15,110	b14,540	277,200	35,360	a3,170	10,890
Mar. 31	a16,080	a24,690	b17,730	268,900	35,800	a3,530	10,890
Apr. 30	32,940	a33,860	b17,730	266,500	39,030	a4,390	10,670
May 31	54,790	a39,990	b17,730	251,900	37,080	a7,360	10,670
June 30	66,150	b32,300	b17,730	376,500	36,360	a8,030	10,890
July 31	59,230	a24,030	b15,340	371,500	37,880	a6,530	10,890
Aug. 31	42,920	a15,880	b10,080	359,500	37,690	a4,070	10,670
Sept. 30	35,040	b15,210	b 6,910	342,200	38,150	a3,620	10,890

Date	Hauser Lake	Holter Lake	Smith River Reservoir	Gibson Reservoir	Pishkun Reservoir	Willow Creek Reservoir	Nilan Reservoir
Sept. 30	52,150	81,630	b 5,940	9,250	20,200	23,350	525
Oct. 31	52,150	81,250	a 5,810	15,790	19,420	23,350	830
Nov. 30	52,150	81,390	a 6,020	20,900	19,420	22,940	1,300
Dec. 31	52,520	81,490	b 6,230	26,820	18,910	23,210	1,790
Jan. 31	52,890	72,820	a 6,250	31,290	18,910	23,210	2,280
Feb. 29	52,150	80,590	b 6,880	35,600	18,650	23,760	a 2,710
Mar. 31	52,150	52,670	a 7,080	39,830	18,780	24,570	a 3,170
Apr. 30	51,790	15,140	a 8,950	64,650	30,750	24,980	4,400
May 31	51,790	81,390	b 9,970	94,800	31,070	30,490	9,040
June 30	52,150	81.920	b 9,850	98,660	31,720	30,640	10,090
July 31	52,150	80,490	b 7,960	59,550	20,200	23,890	a 8,640
Aug. 31	51,790	80,490	b 5,330	32,270	15,700	17,930	a 6,380
Sept. 30	52,150	81,440	b 4,260	33,260	7,130	17,930	a 5,180

Date	Lower Two Medicine Lake	Four Horns Lake	Swift Reservoir	Lake Frances	Ackley Lake	Bair Reservoir	Martinsdale Reservoir
Sept. 30	b 1,010	b13,200	6,480	68,510	b3,410	b4,340	b 9,790
Oct. 31			6,410	64,020	b3,410	a4,310	a10,400
Nov. 30	No	No	8,180	62,980	a3,410	a4,180	a11,040
Dec. 31	additional	additional	10,760	62,760	b3,310	b4,740	b10,590
Jan. 31	data	data	11,610	62,440	b3,310	a4,790	a11,120
Feb. 29	available	available	12,920	62,480	b3,310	b5,620	b11,000
Mar. 31	this year	this year	14,300	62,310	b3,620	a5,420	a11,420
Apr. 30			22,100	72,210	b3,830	a6,910	a18,140
May 31			30,280	90,460	b4,700	b6,830	b21,510
June 30			30,110	103,400	b5,040	b7,010	b23,280
July 31	b 9,480		21,610	87,760	b3,410	b6,190	b18,490
Aug. 31		b11,380	14,740	82,880	b3,000	b3,990	b10,160
Sept. 30			13,180	81,270	b2,750	b3,440	b 9,260

Date	Deadman's Basin Reservoir	Fresno Reservoir	Nelson Reservoir	Mystic Lake	Cooney Reservoir	Tongue River Reservoir
Sept. 30	c46,670	55,070	45,550	19,640	a14,300	15,000
Oct. 31	-	49,510	48,260	19,410	12,410	16,220
Nov. 30	-	49,050	45,550	18,750	13,670	15,550
Dec. 31	-	47,400	43,640	12,840	a13,890	13,600
Jan. 31	-	45,140	42,130	4,920	b14,280	15,000
Feb. 29	-	42,240	40,280	2,500	b15,360	18,760
Mar. 31	-	56,880	41,390	1,820	b17,910	31,470
Apr. 30	-	110,400	48,660	1,560	b19,220	34,600
May. 31	-	76,240	29,700	10,000	b19,140	55,800
June 30	-	80,660	31,160	20,070	b20,120	58,550
July 31	a56,530	36,550	20,430	20,810	a18,250	36,000
Aug. 31	a48,000	a 29,180	19,210	20,410	a14,600	17,300
Sept. 30	a42,990	36,270	23,200	19,350	a12,480	9,060

a Interpolated.
b Figure of contents for first day of following month.
c Estimate.
d Estimated monthend contents supplied by Montana Department of Natural Resources and Conservation.

06334500 LITTLE MISSOURI RIVER AT CAMP CROOK, SD

LOCATION.--Lat 45°32'49", long 103°58'23", in SW¼ sec.2, T.18 N., R.1 E., Harding County, Hydrologic Unit 10110201, on left bank 15 ft (5 m) upstream from bridge on State Highway 20 at east edge of Camp Crook.

DRAINAGE AREA.--1,970 mi^2 (5,100 km^2), approximately.

PERIOD OF RECORD.--September 1903 to November 1906, May 1956 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1904. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,108.98 ft (947.617 m) National Geodetic Vertical Datum of 1929. Sept. 2, 1903, to Nov. 30, 1906, nonrecording gage at site 0.5 mi (0.8 km) upstream at different datum. May 1956 to Oct. 8, 1957, nonrecording gage at site 15 ft (5 m) downstream and Oct. 9, 1957, to Sept. 30, 1976, water-stage recorder at present site both at datum 2.00 ft (0.610 m) higher.

REMARKS.--Records good except those for winter periods, which are poor. Small diversions above station for irrigation. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--27 years, 140 ft^3/s (3.965 m^3/s), 101,400 acre-ft/yr (125 hm^3/yr); median of yearly mean discharges, 110 ft^3/s (3.12 m^3/s), 79,700 acre-ft (98 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft^3/s (267 m^3/s) Mar. 24, 1978, gage height, 16.90 ft (5.151 m), present datum; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1952 reached a stage of about 18 ft (5.5 m), present datum, from local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 58 ft^3/s (1.64 m^3/s) June 17, gage height, 3.19 ft (0.972 m); maximum gage height, 5.36 ft (1.634 m) Mar. 19 (backwater from ice), no peak above base of 1,000 ft^3/s (28.3 m^3/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	4.5	7.0	4.4	2.0	6.0	34	4.2	3.0	.88	.00	.00
2	2.5	5.4	7.0	4.4	2.1	5.6	34	3.8	2.3	.00	.00	.00
3	2.6	5.3	7.5	4.0	2.2	6.0	32	3.5	3.2	.00	.00	.00
4	2.7	5.4	7.5	4.0	2.2	6.6	30	3.3	2.5	.20	.00	.00
5	2.9	5.4	7.0	3.8	2.2	7.0	27	3.2	2.8	2.9	.86	.00
6	2.9	5.5	7.0	3.6	2.2	7.6	27	3.0	3.2	2.0	.57	.00
7	3.9	5.4	6.5	3.4	2.2	8.0	25	2.9	5.2	2.0	.59	.00
8	3.3	4.9	6.0	3.4	2.2	8.0	23	2.9	11	1.0	.00	.40
9	3.6	4.6	6.0	3.0	2.2	8.0	21	2.6	5.3	.80	.00	.80
10	3.5	4.5	6.0	2.5	2.2	8.5	18	2.8	3.8	.80	.20	.80
11	2.8	4.4	5.5	2.5	2.2	8.5	16	3.7	3.2	.00	.60	.80
12	2.8	4.3	5.5	2.8	2.1	8.5	15	4.6	2.4	.00	.80	.87
13	3.2	4.5	5.0	2.8	2.1	9.2	15	4.6	2.2	.00	4.7	1.1
14	3.4	5.0	5.0	3.0	2.0	9.2	13	4.0	2.4	.20	4.4	1.6
15	3.7	5.0	5.0	3.0	1.9	10	12	3.4	2.3	1.0	.00	1.6
16	4.1	5.5	4.0	3.0	2.1	10	14	3.2	1.7	.20	.00	1.6
17	4.1	5.5	5.0	3.0	2.5	10	17	2.3	19	.00	.00	1.8
18	4.7	5.5	5.0	3.0	3.0	10	15	2.5	22	.00	.00	1.8
19	3.9	5.6	5.0	2.8	3.5	10	13	3.3	10	.00	.00	1.8
20	4.1	5.8	5.0	3.0	3.5	11	11	4.1	6.8	.00	.00	1.8
21	4.6	5.4	5.0	3.0	3.5	11	10	4.0	4.8	.00	.00	1.7
22	5.6	5.4	5.0	3.0	3.5	11	8.6	3.7	3.3	.00	.00	1.6
23	4.1	5.4	5.0	3.2	4.0	11	8.0	2.7	4.1	.00	.00	1.6
24	4.3	5.4	4.6	3.2	4.5	13	7.0	2.7	3.2	.00	.00	1.6
25	4.9	6.0	4.6	3.0	5.0	17	6.6	2.7	2.7	.00	.00	2.2
26	5.5	7.0	4.6	2.8	5.6	30	6.0	3.0	.58	.00	.00	1.6
27	4.1	6.5	4.6	2.4	6.0	36	5.8	1.6	.41	.00	.00	.81
28	4.3	6.5	4.3	2.0	6.5	43	6.2	1.8	1.7	.00	.00	.66
29	4.0	6.5	4.0	1.8	7.0	40	6.0	3.7	.89	.00	.00	.51
30	4.2	7.0	4.0	1.9	---	39	4.8	3.9	1.0	.00	2.9	.58
31	4.3	---	4.0	2.0	---	36	---	3.7	---	.00	.00	---
TOTAL	117.0	163.1	167.2	93.7	92.2	454.7	481.0	101.4	136.98	11.98	15.62	29.63
MEAN	3.77	5.44	5.39	3.02	3.18	14.7	16.0	3.27	4.57	.39	.50	.99
MAX	5.6	7.0	7.5	4.4	7.0	43	34	4.6	22	2.9	4.7	2.2
MIN	2.4	4.3	4.0	1.8	1.9	5.6	4.8	1.6	.41	.00	.00	.00
AC-FT	232	324	332	186	183	902	954	201	272	24	31	59

CAL YR 1979 TOTAL 40532.40 MEAN 111 MAX 2410 MIN 1.5 AC-FT 80400
WTR YR 1980 TOTAL 1864.51 MEAN 5.09 MAX 43 MIN .00 AC-FT 3700

06336447 DUCK CREEK NEAR WIBAUX, MT

LOCATION.--Lat 46°52'30", long 104°09'18", in SW¼SW¼SW¼ sec.17, T.13 N., R.60 E., Wibaux County, Hydrologic Unit 10110204, on right bank, and 9.5 mi (15.3 km) southeast of Wibaux.

DRAINAGE AREA.--46.5 mi^2 (120.4 km^2).

PERIOD OF RECORD.--March 1978 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records fair. Some regulation due to stock dams above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 580 ft^3/s (16.4 m^3/s) Mar. 21, 1978, gage height, undetermined; maximum recorded gage height, 4.14 ft (1.262 m) Apr. 18, 1979, backwater from Beaver Creek; no flow during several months each year.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 0.02 ft^3/s (0.001 m^3/s) Mar. 20, gage height, 1.15 ft (0.350 m); no peak above base of 20 ft^3/s (0.57 m^3/s); no flow most of the year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.09	.00	.00	.00	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	.003	.000	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.2	.00	.00	.00	.00	.00	.00

CAL YR 1979 TOTAL 715.89 MEAN 1.96 MAX 125 MIN .00 AC-FT 1420
WTR YR 1980 TOTAL 0.09 MEAN .000 MAX .01 MIN .00 AC-FT .20

06336500 BEAVER CREEK AT WIBAUX, MT

LOCATION.--Lat 46°59'24", long 104°11'00", in NE¼NE¼ sec.12, T.14 N., R.59 E., Wibaux County, Hydrologic Unit 10110204, on left bank 20 ft (6.1 m) upstream from bridge on old U.S. Highway 10, at Wibaux, 12 mi (19 km) upstream from Little Beaver Creek, and at mile 62.5 (100.6 km).

DRAINAGE AREA.--351 mi^2 (909 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1938 to June 1969, October 1978 to current year.

REVISED RECORDS.--WSP 1309: 1943, 1947-48. WSP 1509: 1942(M), 1944-45, 1946(M).

GAGE.--Water-stage recorder. Altitude of gage is 2,650 ft (808 m), by barometer. Prior to Sept. 21, 1940, nonrecording gages at site about 500 ft (152 m) upstream at different datums.

REMARKS.--Water-discharge records good except those below 1 ft^3/s (0.028 m^3/s) and those for winter period, which are poor. Several known diversions for irrigation above station.

AVERAGE DISCHARGE.--32 years (1938-68, 1979-80), 22.0 ft^3/s (0.623 m^3/s), 15,940 acre-ft/yr (19.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,780 ft^3/s (107 m^3/s) Mar. 21, 1939, gage height, 10.8 ft (3.29 m), site and datum then in use; maximum gage height observed, 13.44 ft (4.097 m) Mar. 24, 1943 (ice jam); no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1929, reached a discharge of about 30,000 ft^3/s (850 m^3/s) from the average of three independent indirect measurements made at different sites. Flood in 1872 reported similar in magnitude. Flood in June 1921 reached a stage of about 8.6 ft (2.62 m) lower than 1929 (discharge, about 10,000 ft^3/s (283 m^3/s), estimated on basis of cross-section and information from local residents).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 19 ft^3/s (0.54 m^3/s) Mar. 17 (ice jam); maximum gage height, 7.77 ft (2.368 m) Jan. 31 (backwater from ice); no flow on several days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.96	3.9	3.1	2.2	2.9	8.0	13	4.2	.36	.14	.00	.02
2	.96	4.6	3.1	1.9	3.1	9.2	11	4.2	.36	.20	.00	.02
3	.78	4.2	3.1	1.9	3.4	8.2	9.6	2.8	.28	.28	.00	.00
4	.78	4.6	3.1	1.9	3.7	7.5	9.0	10	.14	.28	.00	.00
5	.78	5.0	3.1	1.8	3.9	7.0	9.6	4.6	.09	.28	.00	.00
6	.60	4.6	3.5	1.7	4.0	6.2	11	4.2	.05	.28	.00	.00
7	.78	5.0	3.1	1.6	3.9	7.1	10	4.2	.05	.28	.00	.00
8	.78	5.0	2.8	1.5	3.7	7.6	9.6	3.5	.05	.28	.00	.00
9	.96	4.6	2.8	1.4	3.6	8.0	8.4	3.5	.07	.28	.00	.00
10	1.2	4.6	2.7	1.3	3.6	7.4	7.9	2.2	.09	.28	.00	.00
11	1.2	4.6	2.8	1.3	3.5	8.3	7.4	.96	.05	.20	.00	.00
12	1.2	5.0	2.8	1.3	3.4	9.5	7.9	.96	.09	.20	.00	.00
13	1.2	5.0	2.8	1.4	3.4	11	7.9	.78	.09	.14	.00	.00
14	1.4	5.9	3.1	1.5	3.4	13	6.4	.78	.14	.20	.00	.00
15	1.6	5.9	2.8	1.6	3.5	15	6.4	.96	.20	.14	.02	.00
16	1.4	4.6	2.6	1.7	3.7	17	6.4	.96	.20	.20	.09	.00
17	.96	4.2	3.0	1.8	4.3	19	5.9	.78	.20	.28	.02	.00
18	.78	3.5	3.5	1.7	4.8	18	5.5	.78	.20	.28	.02	.00
19	1.2	4.2	3.1	1.7	5.4	17	5.5	.60	.20	.28	.02	.00
20	1.4	4.2	3.1	1.6	5.2	16	4.6	.78	.28	.20	.02	.00
21	1.4	3.9	3.1	1.7	5.0	14	5.0	.78	.28	.14	.02	.00
22	2.5	3.9	2.8	2.1	4.8	14	5.0	.60	.20	.09	.02	.00
23	2.5	3.9	2.5	2.8	4.6	15	3.9	.78	.20	.09	.02	.05
24	2.5	3.9	2.5	3.0	4.4	14	4.2	.96	.28	.00	.00	.14
25	1.4	3.5	2.5	3.0	4.4	13	4.2	.70	.28	.00	.00	.46
26	2.8	3.9	2.5	2.8	6.5	12	4.2	.46	.20	.00	.02	.46
27	2.8	3.1	2.5	2.7	7.9	11	3.5	.46	.20	.00	.05	.78
28	2.8	2.8	2.5	2.5	8.9	11	3.5	.36	.28	.00	.09	1.2
29	3.5	2.8	2.5	2.4	8.2	11	3.9	.28	.14	.00	.05	1.2
30	3.5	2.8	2.2	2.3	---	12	3.9	.46	.14	.00	.05	.96
31	3.9	---	2.2	2.6	---	13	---	.36	---	.00	.05	---
TOTAL	50.52	127.7	87.8	60.7	131.1	360.0	204.3	57.94	5.39	5.02	.56	5.29
MEAN	1.63	4.26	2.83	1.96	4.52	11.6	6.81	1.87	.18	.16	.018	.18
MAX	3.9	5.9	3.5	3.0	8.9	19	13	10	.36	.28	.09	1.2
MIN	.60	2.8	2.2	1.3	2.9	6.2	3.5	.28	.05	.00	.00	.00
AC-FT	100	253	174	120	260	714	405	115	11	10.0	1.1	10

CAL YR 1979 TOTAL 11131.40 MEAN 30.5 MAX 1040 MIN .20 AC-FT 22080
WTR YR 1980 TOTAL 1096.32 MEAN 3.00 MAX 19 MIN .00 AC-FT 2170

06336500 BEAVER CREEK AT WIBAUX, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
OCT 17...	1300	.72	0	2580	8.1	15.0	10.5	8.9	88	740	330	130
NOV 28...	1200	2.8	3	3040	8.1	-7.0	.0	11.2	82	780	340	130
DEC 18...	1230	3.6	0	2920	8.0	11.0	.0	11.6	87	780	280	130
JAN 24...	0930	3.7	68	3250	7.9	4.0	.5	11.4	88	840	330	140
FEB 28...	1430	9.0	1	1750	8.1	-5.0	.0	11.2	74	430	160	80
MAR 20...	1200	16	1	1570	8.0	2.0	.0	11.0	82	400	160	76
APR 16...	1030	6.2	0	1850	8.0	14.0	9.5	8.9	94	470	200	84
MAY 21...	1700	.58	0	2680	8.3	35.0	24.5	11.1	146	680	280	120
JUN 24...	1300	.31	0	2550	8.1	24.0	23.0	7.2	91	690	230	120
JUL 24...	1400	.02	0	2480	8.2	30.0	25.0	8.3	109	710	300	120
AUG 26...	1300	E.02	52	2530	8.0	12.0	16.5	6.0	67	740	310	130
SEP 23...	0930	.01	0	2500	7.8	10.0	10.0	5.2	50	740	310	130

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT 17...	100	350	5.6	12	410	1000	9.4	.3	--	--	11	1860
NOV 28...	110	420	6.6	11	440	1200	9.5	.3	--	--	9.9	2160
DEC 18...	110	420	6.6	11	500	1100	9.2	.3	.1	.00	11	2090
JAN 24...	120	490	7.3	9.6	510	1300	22	.3	--	--	10	2400
FEB 28...	56	230	4.8	12	270	650	6.2	.2	--	--	7.6	1200
MAR 20...	51	180	3.9	11	240	530	6.4	.1	.1	.00	6.8	1010
APR 16...	62	220	4.4	7.7	270	670	5.5	.2	--	--	3.1	1220
MAY 21...	92	330	5.5	11	400	880	12	.3	--	--	8.8	1700
JUN 24...	95	320	5.3	11	460	940	12	.3	.3	.00	11	1790
JUL 24...	100	340	5.5	1.2	410	950	14	.3	.0	.00	6.4	1780
AUG 26...	100	330	5.3	12	400	940	17	.2	--	--	7.3	1800
SEP 23...	100	330	5.3	8.2	390	960	17	.3	.0	.00	11	1820

06336500 BEAVER CREEK AT WIBAUX, MT--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT											
17...	2.53	3.62	.01	.01	2.6	2.6	.01	--	--	730	10
NOV											
28...	2.94	16.3	.01	.02	1.6	1.6	.01	--	--	780	10
DEC											
18...	2.84	20.3	.05	.01	.47	.48	.01	18	.4	1500	20
JAN											
24...	3.26	24.0	.09	.01	.42	.43	.02	--	--	820	0
FEB											
28...	1.63	29.2	.47	.14	1.9	2.0	.37	--	--	460	70
MAR											
20...	1.37	43.6	.14	.18	1.1	1.3	.08	24	.4	480	130
APR											
16...	1.66	20.4	.01	.00	.73	.73	.04	--	--	450	70
MAY											
21...	2.31	2.66	.02	.01	.67	.68	.09	--	--	680	30
JUN											
24...	2.43	1.50	.00	.05	.79	.84	.08	17	.2	740	20
JUL											
24...	2.42	.10	.00	.01	.96	.97	.06	10	.3	780	40
AUG											
26...	2.45	E.10	.30	.02	.85	.87	.07	--	--	790	80
SEP											
23...	2.48	.05	.00	.01	.57	.58	.05	11	.6	680	30

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)
JUL								
24...	1400	3	2	0	0	0	0	10

DATE	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
JUL								
24...	0	5	2	300	6	0	300	130

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
JUL								
24...	.2	.1	3	1	0	0	20	10

06336500 BEAVER CREEK AT WIBAUX, MT--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER-ATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT					
17...	1300	10.5	.72	13	.03
NOV					
28...	1200	.0	2.8	81	.61
DEC					
18...	1230	.0	3.6	34	.33
JAN					
24...	0930	.5	3.7	67	.67
FEB					
28...	1430	.0	9.0	126	3.1
MAR					
20...	1200	.0	16	11	.48
APR					
16...	1030	9.5	6.2	71	1.2
MAY					
21...	1700	24.5	.58	26	.04
JUN					
24...	1300	23.0	.31	90	.08
JUL					
24...	1400	25.0	.02	44	.00
AUG					
26...	1300	16.5	E.02	125	.01
SEP					
23...	0930	10.0	.01	41	.00

06336510 HAY CREEK NO. 2 NEAR WIBAUX, MT
(Formerly published as Upper Hay Creek tributary near Wibaux, MT)

LOCATION.--Lat 46°59'31", long 104°06'12", in NW¼SW¼SE¼ sec.3, T.14 N., R.60 E., Wibaux County, Hydrologic Unit 10110204, on right bank, 4 mi (6 km) east of Wibaux.

DRAINAGE AREA.--3.8 mi^2 (9.8 km^2).

PERIOD OF RECORD.--March 1978 to current year. Prior to October 1979, published as Upper Hay Creek tributary near Wibaux, MT.

GAGE.--Water-stage recorder.

REMARKS.--Records poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 85 ft^3/s (2.41 m^3/s) Mar. 19, 1978, gage height, undetermined; maximum recorded gage height, 6.66 ft (2.030 m) July 5, 1978; no flow most days.

EXTREMES FOR CURRENT PERIOD.--Maximum discharge, 4.0 ft^3/s (0.11 m^3/s) Mar. 15, gage height, 7.06 ft (2.152 m), from floodmarks, backwater from ice, no peak above base of 5.0 ft^3/s (0.14 m^3/s); no flow most days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.10	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.25	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.50	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.75	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.25	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	1.90	.00	.00	.00	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	.061	.000	.000	.000	.000	.000	.000
MAX	.00	.00	.00	.00	.00	.75	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	3.8	.00	.00	.00	.00	.00	.00

CAL YR 1979 TOTAL 34.56 MEAN .095 MAX 8.0 MIN .00 AC-FT 69
WTR YR 1980 TOTAL 1.90 MEAN .005 MAX .75 MIN .00 AC-FT 3.8

06336515 HAY CREEK NEAR WIBAUX, MT

(Formerly published as Lower Hay Creek tributary near Wibaux, MT)

LOCATION.--Lat 47°02'26", long 104°08'04", in NW¼SW¼SW¼ sec.21, T.15 N., R.60 E., Wibaux County, Hydrologic Unit 10110204, on left bank, and 5.5 mi (8.8 km) northeast of Wibaux.

DRAINAGE AREA.--11.5 mi^2 (29.8 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1978 to current year. Prior to October 1979, published as Lower Hay Creek tributary near Wibaux.

GAGE.--Water-stage recorder.

REMARKS.--Water-discharge records fair except those for winter period. Some regulation due to stock dams upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58 ft^3/s (1.64 m^3/s) Apr. 9, 1979, gage height, 2.04 ft (0.622 m); maximum gage height, 6.67 ft (2.033 m) Mar. 19, 1978, backwater from ice; no flow during several months most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 0.60 ft^3/s (0.017 m^3/s) Mar. 18, gage height, 2.27 ft (0.692 m), backwater from ice, no peak above base of 10 ft^3/s (0.28 m^3/s); no flow on many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.01	.01	.01	.00	.00	.09	.03	.02	.00	.00	.00
2	.01	.01	.01	.00	.00	.00	.08	.03	.02	.01	.00	.00
3	.01	.01	.01	.00	.00	.00	.08	.02	.01	.00	.00	.00
4	.01	.01	.01	.00	.00	.00	.08	.02	.01	.00	.00	.00
5	.01	.01	.01	.00	.00	.00	.08	.02	.01	.00	.00	.00
6	.01	.01	.01	.00	.00	.00	.07	.02	.01	.00	.00	.00
7	.01	.01	.01	.00	.00	.00	.07	.02	.01	.00	.00	.00
8	.01	.01	.01	.00	.00	.00	.07	.02	.01	.00	.00	.00
9	.01	.01	.01	.00	.00	.00	.06	.03	.01	.00	.00	.00
10	.01	.01	.01	.00	.00	.00	.06	.03	.01	.00	.00	.00
11	.01	.01	.01	.00	.00	.02	.06	.03	.01	.00	.00	.00
12	.01	.01	.01	.00	.00	.05	.06	.03	.01	.00	.00	.01
13	.01	.01	.01	.00	.00	.07	.06	.03	.02	.00	.00	.01
14	.01	.01	.01	.00	.00	.10	.07	.03	.01	.00	.00	.01
15	.01	.01	.01	.00	.00	.15	.08	.03	.01	.00	.00	.01
16	.01	.01	.01	.00	.00	.20	.08	.03	.01	.00	.04	.01
17	.01	.01	.01	.00	.00	.30	.09	.03	.01	.00	.01	.01
18	.01	.01	.01	.00	.00	.35	.11	.03	.01	.00	.00	.01
19	.01	.01	.01	.00	.00	.50	.09	.03	.01	.00	.00	.01
20	.01	.01	.01	.00	.00	.45	.08	.03	.01	.00	.00	.01
21	.01	.01	.01	.00	.00	.40	.08	.03	.01	.00	.00	.01
22	.01	.01	.01	.00	.00	.35	.06	.02	.01	.00	.00	.02
23	.01	.01	.01	.00	.00	.30	.06	.02	.01	.00	.00	.02
24	.01	.01	.01	.00	.00	.25	.05	.02	.01	.00	.00	.02
25	.01	.01	.01	.00	.00	.20	.04	.02	.00	.00	.00	.02
26	.01	.01	.01	.00	.00	.15	.04	.02	.00	.00	.00	.02
27	.01	.01	.01	.00	.00	.12	.03	.02	.00	.00	.00	.02
28	.01	.01	.01	.00	.00	.10	.03	.02	.00	.00	.01	.02
29	.01	.01	.01	.00	.00	.10	.03	.02	.00	.00	.01	.02
30	.01	.01	.01	.00	---	.10	.03	.02	.00	.00	.01	.02
31	.01	---	.01	.00	---	.10	---	.02	---	.00	.00	---
TOTAL	.31	.30	.31	.01	.00	4.36	1.97	.77	.27	.01	.08	.28
MEAN	.010	.010	.010	.000	.000	.14	.066	.025	.009	.000	.003	.009
MAX	.01	.01	.01	.01	.00	.50	.11	.03	.02	.01	.04	.02
MIN	.01	.01	.01	.00	.00	.00	.03	.02	.00	.00	.00	.00
AC-FT	.6	.6	.6	.02	.00	8.6	3.9	1.5	.5	.02	.2	.6

CAL YR 1979 TOTAL 267.00 MEAN .73 MAX 31 MIN .00 AC-FT 530
WTR YR 1980 TOTAL 8.67 MEAN .024 MAX .50 MIN .00 AC-FT 17

06336515 HAY CREEK TRIBUTARY NEAR WIBAUX, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, WATER (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)
NOV 20...	1130	.01	2050	7.5	1.5	1000	610	170	150
MAR 28...	1215	.10	2050	6.8	1.0	1100	840	170	160
JUN 10...	1115	.01	*2620	6.3	19.5	1300	970	140	220

* Laboratory value

DATE	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
NOV 20...	130	1.8	10	430	850	30	.2	7.6	1610
MAR 28...	160	2.1	10	250	1200	16	.1	8.6	1880
JUN 10...	190	2.3	8.1	290	1300	21	.2	6.6	2060

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)
NOV 20...	2.19	.04	.71	410	160	220	0	1500
MAR 28...	2.56	.51	1.4	500	320	370	0	1600
JUN 10...	2.80	.06	1.1	650	170	300	0	1300

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
MAR 18...	1640	.0	12	53	1.8
28...	1415	1.0	8.8	31	.74

06336545 LITTLE BEAVER CREEK NEAR WIBAUX, MT

LOCATION.--Lat 47°03'44", long 104°05'30", in NW¼NW¼NW¼ sec.14, T.15 N., R.60 W., Wibaux County, Hydrologic Unit 10110204, on the right bank 100 ft (30.5 m) upstream from county highway bridge, 9.5 mi (15.3 km) northeast of Wibaux.

DRAINAGE AREA.--96.2 mi^2 (249.2 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1978 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Water-discharge records good except those for the winter period, which are fair. Flow regulated by Odlands Dam, capacity 600 acre-ft (740 hm^3) to the top of the spillway, 9.1 mi (14.6 km) above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,850 ft^3/s (52.4 m^3/s) Mar. 21, 1978, gage height, 10.14 ft (3.091 m), backwater from ice; no flow on many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15 ft^3/s (0.42 m^3/s) Mar. 18, gage height, 3.17 ft (0.966 m); no flow from July 17 to Aug. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.06	.25	.17	.15	.17	.26	5.3	.28	.22	.06	.00	.06
2	.06	.22	.18	.14	.18	.25	3.1	.28	.18	.05	.00	.06
3	.09	.25	.18	.13	.19	.24	2.6	.27	.17	.05	.00	.07
4	.10	.22	.18	.13	.20	.24	1.9	.23	.15	.05	.00	.07
5	.07	.20	.17	.13	.20	.24	2.3	.19	.15	.05	.00	.07
6	.07	.26	.17	.13	.20	.24	2.4	.18	.15	.03	.00	.06
7	.07	.22	.17	.13	.20	.24	1.7	.17	.15	.02	.00	.06
8	.07	.22	.17	.13	.20	.25	1.7	.17	.15	.01	.00	.04
9	.13	.28	.18	.13	.20	.25	1.6	.17	.15	.01	.00	.03
10	.20	.28	.17	.13	.20	.25	1.5	.17	.15	.01	.00	.03
11	.20	.28	.16	.13	.20	.25	1.7	.17	.10	.01	.00	.03
12	.19	.23	.16	.14	.20	.75	.99	.17	.10	.01	.00	.05
13	.20	.18	.16	.15	.20	1.5	.93	.17	.10	.01	.00	.06
14	.20	.19	.16	.15	.20	3.0	.77	.17	.10	.01	.00	.06
15	.22	.20	.16	.16	.20	5.0	.68	.15	.10	.01	.00	.07
16	.22	.18	.16	.16	.20	6.0	.68	.17	.10	.01	1.5	.07
17	.23	.17	.17	.16	.21	8.0	.58	.17	.10	.00	.75	.08
18	.23	.16	.17	.16	.22	11	.52	.17	.10	.00	.30	.08
19	.23	.16	.16	.16	.22	8.0	.47	.17	.10	.00	.25	.09
20	.25	.16	.16	.16	.22	8.0	.52	.22	.10	.00	.20	.09
21	.23	.16	.16	.16	.22	8.5	.39	.17	.10	.00	.15	.10
22	.23	.16	.15	.16	.22	8.5	.35	.17	.10	.00	.12	.11
23	.23	.16	.15	.17	.22	10	.35	.15	.10	.00	.10	.10
24	.25	.16	.15	.17	.22	9.0	.31	.17	.10	.00	.09	.09
25	.27	.16	.15	.17	.22	8.0	.31	.17	.10	.00	.08	.09
26	.25	.16	.15	.17	.23	7.0	.31	.17	.10	.00	.06	.09
27	.25	.16	.15	.17	.25	7.5	.28	.17	.10	.00	.04	.10
28	.25	.16	.15	.17	.27	8.0	.27	.17	.10	.00	.05	.11
29	.25	.16	.15	.17	.27	7.0	.27	.22	.09	.00	.06	.11
30	.25	.16	.15	.17	---	6.0	.27	.22	.09	.00	.05	.11
31	.25	---	.15	.17	---	5.3	---	.23	---	.00	.05	---
TOTAL	5.80	5.91	5.02	4.71	6.13	138.76	35.05	5.85	3.60	.40	3.85	2.24
MEAN	.19	.20	.16	.15	.21	4.48	1.17	.19	.12	.013	.12	.075
MAX	.27	.28	.18	.17	.27	11	5.3	.28	.22	.06	1.5	.11
MIN	.06	.16	.15	.13	.17	.24	.27	.15	.09	.00	.00	.03
AC-FT	12	12	10.0	9.3	12	275	70	12	7.1	.8	7.6	4.4

CAL YR 1979 TOTAL 3474.40 MEAN 9.52 MAX 400 MIN .02 AC-FT 6890
WTR YR 1980 TOTAL 217.32 MEAN .59 MAX 11 MIN .00 AC-FT 431

06336545 LITTLE BEAVER CREEK NEAR WIBAUX, MT--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, WATER (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)
NOV 20...	1345	.16	3000	7.4	2.0	930	310	90	170
MAR 28...	1415	8.8	1600	7.5	1.0	500	270	84	71
JUN 10...	1005	.15	3500	7.8	19.0	760	470	55	150

DATE	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)
NOV 20...	630	9.0	18	620	1500	15	.3	4.6	2800
MAR 28...	190	3.7	13	230	700	11	.2	6.4	1220
JUN 10...	540	8.6	10	290	1500	10	.3	.6	2440

DATE	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	BORON, DISSOLVED (UG/L AS B) (01020)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)
NOV 20...	3.81	1.21	1.2	960	20	30	0	1200
MAR 28...	1.66	29.0	1.8	420	230	310	< 10	890
JUN 10...	3.32	.99	1.2	1100	80	20	3	800

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPERATURE, WATER (DEG C) (00010)	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)
MAR 18...	1640	.0	12	53	1.8
28...	1415	1.0	8.8	31	.74

06336600 BEAVER CREEK NEAR TROTTERS, ND

LOCATION.--Lat 47°09'47", long 103°59'32", in SW¼SW¼NE¼ sec.33, T.143 N., R.105 W., Golden Valley County, Hydrologic Unit 10110204, on left bank 100 ft (30 m) upstream from bridge on county road, 2.4 mi (3.9 km) west of Montana-North Dakota State line, 13 mi (21 km) southwest of Trotters, 17 mi (27 km) north of Beach, 20 mi (32 km) upstream from Elk Creek, and 27 mi (43 km) above mouth.

DRAINAGE AREA.--485 mi^2 (1,260 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,370 ft (722 m), from topographic map.

REMARKS.--Water-discharge records good except those for November to March, which are fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,720 ft^3/s (77.0 m^3/s) Mar. 29, 1978, gage height, 18.61 ft (5.672 m); maximum gage height, 19.27 ft (5.873 m) Mar. 22, 1978, ice jam; minimum daily discharge, 0.02 ft^3/s (0.001 m^3/s) July 30 to Aug. 3, Aug. 8, 11, 12, 25-28, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50 ft^3/s (1.42 m^3/s) Mar. 15, ice jam, no peak above base of 200 ft^3/s (5.66 m^3/s); maximum gage height, 8.52 ft (2.597 m) Feb. 28, ice jam; minimum daily discharge, 0.02 ft^3/s (0.001 m^3/s) July 30 to Aug. 3, Aug. 8, 11, 12, 25-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.19	.57	2.7	5.3	1.9	7.0	17	4.4	1.1	.30	.02	.04
2	.19	.65	3.1	5.0	2.0	6.0	16	4.1	1.1	.25	.02	.04
3	.21	.58	3.5	4.7	2.1	5.0	18	3.9	.82	.25	.02	.03
4	.19	.48	4.1	4.2	2.1	5.6	20	3.9	.67	.18	.03	.04
5	.16	.54	4.7	3.7	2.2	6.3	19	3.7	.74	.15	.03	.03
6	.16	1.0	4.8	3.2	2.3	7.2	17	3.7	.67	.15	.03	.03
7	.16	2.0	4.7	2.9	2.5	8.0	16	3.3	.67	.15	.03	.03
8	.19	2.3	4.5	2.7	2.7	7.0	15	3.3	.60	.15	.02	.02
9	.34	2.6	4.3	2.5	2.8	6.0	14	3.1	.60	.15	.03	.02
10	.19	2.8	4.1	2.5	3.0	8.0	13	3.1	.49	.12	.03	.02
11	.92	2.9	3.9	2.9	3.1	10	13	2.9	.49	.09	.02	.02
12	.34	3.0	4.3	3.3	3.3	15	12	2.9	.74	.08	.02	.03
13	.24	3.1	4.7	3.5	3.4	23	10	2.9	2.3	.06	.03	.03
14	.24	3.1	5.0	3.6	2.9	35	10	2.9	3.1	.06	.03	.04
15	.29	3.2	5.3	3.7	2.4	50	9.6	2.8	2.2	.06	.05	.04
16	.34	3.3	5.0	3.7	2.7	40	9.1	2.6	1.4	.06	.49	.05
17	.32	3.5	4.6	3.8	3.1	44	8.5	2.6	1.1	.05	.15	.06
18	.38	3.6	4.7	3.8	3.4	45	8.3	2.3	.74	.05	.08	.06
19	.46	3.4	5.0	3.8	3.3	44	8.1	2.2	.54	.06	.06	.06
20	.46	3.3	5.3	3.8	3.0	42	7.9	2.0	.54	.07	.05	.06
21	.43	3.1	5.7	3.8	2.8	40	7.2	1.9	.54	.06	.04	.06
22	.46	3.0	6.0	3.9	2.6	39	7.0	1.6	.49	.06	.04	.07
23	.45	2.8	4.0	3.9	2.4	37	6.2	1.3	1.4	.05	.04	.07
24	.48	2.7	4.5	3.7	2.2	35	5.5	1.2	3.3	.04	.03	.07
25	.60	2.6	4.9	3.4	2.0	33	5.1	.98	1.6	.04	.02	.08
26	.50	2.5	5.1	3.0	2.2	30	4.9	.67	.90	.03	.02	.08
27	.55	2.4	5.2	2.5	5.0	28	4.9	.54	.74	.03	.02	.07
28	.46	2.3	5.4	2.1	8.0	25	4.9	.60	.49	.03	.02	.07
29	.50	2.2	5.5	1.9	7.5	23	4.9	.67	.39	.03	.04	.07
30	.56	2.3	5.5	1.9	---	20	4.5	.74	.34	.02	.04	.08
31	.50	---	5.5	1.9	---	19	---	.98	---	.02	.04	---
TOTAL	11.46	71.82	145.6	104.6	88.9	743.1	316.6	73.78	30.80	2.90	1.59	1.47
MEAN	.37	2.39	4.70	3.37	3.07	24.0	10.6	2.38	1.03	.094	.051	.049
MAX	.92	3.6	6.0	5.3	8.0	50	20	4.4	3.3	.30	.49	.08
MIN	.16	.48	2.7	1.9	1.9	5.0	4.5	.54	.34	.02	.02	.02
AC-FT	23	142	289	207	176	1470	628	146	61	5.8	3.2	2.9

CAL YR 1979 TOTAL 16798.85 MEAN 46.0 MAX 1220 MIN .13 AC-FT 33320
WTR YR 1980 TOTAL 1592.62 MEAN 4.35 MAX 50 MIN .02 AC-FT 3160

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)
OCT 16...	1430	.25	2790	8.2	12.0	10.5	9.8	94	--	60
NOV 15...	1145	3.2	2730	8.2	15.5	.0	12.7	95	K10	64
DEC 12...	1025	4.3	2770	8.2	.0	.0	12.0	90	K4	74
JAN 09...	1100	2.5	3020	8.1	-26.0	.0	11.3	85	K4	K8
FEB 06...	1135	2.3	3530	7.8	-4.0	.0	10.6	79	K1	80
MAR 25...	1100	33	1420	8.2	10.0	.5	12.9	96	K2	290
APR 09...	1320	17	1500	8.4	13.5	3.5	13.9	113	< 1	35
MAY 14...	1230	3.0	2400	8.3	16.0	15.0	10.0	105	24	39
JUN 04...	0955	.69	2610	8.2	24.5	19.0	6.2	74	210	520
JUL 09...	1300	.14	2830	8.2	28.0	22.0	7.4	91	130	530
AUG 06...	1045	.03	2900	8.5	25.5	18.5	10.8	126	38	120
SEP 18...	1100	.06	2830	8.0	14.0	11.0	9.5	91	K1	24

DATE	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT 16...	700	190	100	110	520	8.5	12	620	0	510
NOV 15...	750	280	120	110	420	6.7	14	578	0	474
DEC 12...	780	320	130	110	390	6.1	10	564	0	462
JAN 09...	840	310	140	120	460	6.9	10	647	0	531
FEB 06...	950	350	150	140	510	7.2	11	727	0	596
MAR 25...	390	150	69	52	200	5.0	10	288	0	236
APR 09...	360	110	63	48	190	4.4	7.1	299	2	249
MAY 14...	600	190	95	87	360	7.3	12	503	0	412
JUN 04...	710	240	120	100	430	8.0	13	576	0	472
JUL 09...	750	270	120	110	400	6.3	13	586	0	480
AUG 06...	810	340	110	130	410	6.3	13	547	12	468
SEP 18...	790	300	120	120	440	6.8	7.9	598	0	490

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CARBON DIOXIDE DIS- SOLVED (MG/L AS CO2) (00405)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)
OCT 16...	6.3	1100	22	.3	5.8	2120	1870	2.88	1.43	.00
NOV 15...	5.8	1200	11	.3	8.4	2070	2170	2.82	17.9	.08
DEC 12...	5.7	1100	12	.2	9.2	2130	2040	2.90	24.7	.15
JAN 09...	8.2	1200	13	.3	9.1	2350	2270	3.20	15.9	.07
FEB 06...	18	1400	14	.2	12	2760	2600	3.75	17.1	.20
MAR 25...	2.9	560	6.5	.2	5.6	1020	1050	1.39	91.2	.14
APR 09...	1.9	560	5.7	.1	3.3	1070	1030	1.46	49.1	.01
MAY 14...	4.0	990	8.3	.3	4.3	1810	1810	2.46	14.7	.02
JUN 04...	5.8	1100	9.5	.3	2.9	2040	2060	2.77	3.80	.03
JUL 09...	5.9	1100	9.0	.4	6.6	2180	2050	2.96	.82	.02
AUG 06...	2.9	1200	7.8	.4	6.3	2240	2160	3.05	.18	.00
SEP 18...	9.6	1200	7.3	.3	5.1	2240	2200	3.05	.36	.00

DATE	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED (MG/L AS C) (00689)	BORON, DIS- SOLVED (UG/L AS B) (01020)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
OCT 16...	--	.11	.67	.78	.02	.01	11	.5	730	20
NOV 15...	.10	.03	.55	.58	.01	.01	17	.1	670	20
DEC 12...	.09	.06	.65	.71	.00	.00	30	.2	620	50
JAN 09...	.07	.08	.55	.63	.01	.01	11	--	730	20
FEB 06...	.21	.05	.57	.62	.01	.00	12	.8	790	40
MAR 25...	.17	.11	1.3	1.4	.09	.04	13	.8	380	79
APR 09...	.01	.02	.58	.60	.05	.01	9.1	.4	350	< 10
MAY 14...	.04	.01	.61	.62	.02	.01	12	--	690	< 25
JUN 04...	.01	.12	.78	.90	.05	.01	14	1.1	790	< 10
JUL 09...	.04	.06	.28	.34	.00	.02	26	.8	1000	30
AUG 06...	.00	.04	.96	1.0	.12	.02	21	.3	1100	40
SEP 18...	.00	.01	2.2	2.2	.02	.01	23	--	920	60

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE) (01012)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)
MAR 25...	1100	10	3	2	200	40	0	< 1	0	0
MAY 14...	1230	80	--	1	--	50	--	< 3	--	0
JUN 04...	0955	40	2	2	100	30	0	< 1	0	0
JUL 09...	1300	--	--	--	--	480	--	--	--	--

DATE	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, DISSOLVED (UG/L AS CU) (01040)	LITHIUM TOTAL RECOVERABLE (UG/L AS LI) (01132)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY DISSOLVED (UG/L AS HG) (71890)
MAR 25...	1	< 3	13	11	30	36	80	38	.8	.6
MAY 14...	--	< 8	--	< 25	--	65	--	54	--	.5
JUN 04...	0	< 3	7	< 10	70	28	260	22	.3	.1
JUL 09...	--	--	--	--	--	--	--	--	--	--

DATE	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO) (01062)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI) (01067)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
MAR 25...	1	< 10	7	3	0	0	810	6.0	40	15
MAY 14...	--	< 25	--	4	--	0	1400	< 8.0	--	< 8
JUN 04...	1	< 10	4	4	0	0	630	< 3.0	40	7
JUL 09...	--	--	--	--	--	--	--	--	--	--

DATE	TIME	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS) (01003)	BARIUM, RECOV. FM BOTTOM MATERIAL (UG/G AS BA) (01008)	BERYLLIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01013)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01029)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO) (01038)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU) (01043)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG) (71921)	MOLYBDENUM, RECOV. FM BOTTOM MATERIAL (UG/G) (01063)	NICKEL, RECOV. FM BOTTOM MATERIAL (UG/G AS NI) (01068)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G) (01148)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN) (01093)
MAR 25...	1100	10	180	1	5	30	12	.03	0	20	0	27
JUN 04...	0955	100	300	1	4	10	13	.04	5	20	0	10

06336600 BEAVER CREEK NEAR TROTTERS, ND--Continued

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	GROSS ALPHA, DIS- SOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, DIS- SOLVED (PCI/L AS U-NAT) (01515)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT) (01516)	GROSS BETA, DIS- SOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DIS- SOLVED (PCI/L AS SR/ YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/ YT-90) (80060)
MAR									
25...	1100	< 13	< 8.8	< .4	< .3	< 6.7	.8	6.9	.8
JUN									
04...	0955	< 26	< 18	1.3	.9	15	2.0	15	1.9

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	TEMPER- ATURE, WATER (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
OCT					
16...	1430	10.5	.25	54	.04
NOV					
15...	1145	.0	3.2	180	1.6
DEC					
12...	1025	.0	4.3	14	.16
JAN					
09...	1100	.0	2.5	64	.43
FEB					
06...	1135	.0	2.3	34	.21
MAR					
25...	1100	.5	33	25	2.2
APR					
09...	1320	3.5	17	28	1.3
MAY					
14...	1230	15.0	3.0	57	.46
27...	1130	19.0	.54	103	.15
JUN					
04...	0955	19.0	.69	83	.15
JUL					
09...	1300	22.0	.14	138	.05
16...	1145	23.0	.06	113	.02
AUG					
06...	1045	18.5	.03	51	.00
SEP					
18...	1100	11.0	.06	38	.01

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM (80174)
MAR												
25...	1100	1	2	4	7	12	23	44	66	80	96	100
JUN												
04...	0955	8	13	16	18	21	30	51	79	92	100	--

PERIPHYTON ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	LENGTH OF EXPO- SURE (DAYS) (00022)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	CHLOR-A PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70957)	CHLOR-B PERI- PHYTON CHROMO- GRAPHIC FLUOROM (MG/M2) (70958)	BIOMASS CHLORO- PHYLL RATIO PERI- PHYTON (UNITS) (70950)
JUL							
09...	1300	35	192	175	1.66	.460	10240
AUG							
06...	1045	28	30.2	26.1	5.01	1.06	818

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are given in a second table.

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain, but it is usually determined by comparison with nearby continous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft^3/s)
Part 6							
		BIG SHEEP CREEK BASIN					
06013500	Big Sheep Creek below Muddy Creek, near Dell	Lat 44°39'19", long 112°46'41", SW¼NW¼SE¼ sec.35, T.13 S., R.10 W., Beaverhead County, Hydrologic Unit 10020001, on left bank 2.2 mi (3.5 km) downstream from Muddy Creek, 6.5 mi (10.5 km) southwest of Dell, and 8.5 mi (13.7 km) upstream of mouth.	278	1936 † 1946-53† 1960-75 1976-78† 1979-80	4-22-80	5.22	343
		CLARK CANYON BASIN					
06015430	Clark Canyon near Dillon	Lat 45°00'56", long 112°50'10", in SW¼SW¼ sec.28, T.9 S., R.10 W., Beaverhead County, Hydrologic Unit 10020002, at culvert on county road, 0.3 mi (0.5 km) south of Interstate Highway 15 and junction with access road, 1.6 mi (2.6 km) north of Interstate Highway 15 and junction to Clark Canyon Dam, 17.0 mi (27.4 km) southwest of Dillon.	18.0	1969 1974-80	5-26-80	2.54	43
		RUBY RIVER BASIN					
06019400	Sweetwater Creek near Alder	Lat 45°04'39", long 112°13'32", in NW¼SW¼ sec.4, T.9 S., R.4 W., Madison County, Hydrologic Unit 10020003, at bridge on county road 0.6 mi (1.0 km) upstream from small reservoir, 3.5 mi (5.6 km) upstream from Belmont Park Ranch, 6.0 mi (9.7 km) southwest of Ruby River bridge, 12.5 mi (20.1 km) southwest of Ruby Reservoir Dam, 18 mi (29 km) south of Alder.	81.5	1974-80	4-20-80	2.18	51
06019800	Idaho Creek near Alder	Lat 45°11'51", long 112°08'20", in center of sec.30, T.7 S., R.4 W., Madison County, Hydrologic Unit 10020003, at bridge on county road 9 mi (15 km) south of Alder.	11.0	1960-80	1979 6-12-80	-- 2.20	a 46 45

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi²)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft³/s)
		BIG HOLE RIVER BASIN					
06025100	Quartz Hill Gulch near Wise River	Lat 45°46'35", long 112°51'41", in NE¼SE¼ sec.5, T.1 S., R.10 W., Beaverhead County, Hydrologic Unit 10020004, 210 ft (64 m) upstream from State Highway 43, 0.3 mi (0.5 km) west of Dewey, 4.2 mi (6.8 km) east of Wise River.	14.3	1974-80	9-11-80	2.40	b102
		FISH CREEK BASIN					
06027700	Fish Creek near Silver Star	Lat 45°46'18", long 112°14'56", in NW¼ sec.8, T.1 S., R.5 W., Silver Bow County, Hydrologic Unit 10020005, at bridge on county road, 6 mi (10 km) north of Silver Star.	38.9	1959-80	5-25-80	1.05	96
		TRIBUTARY BETWEEN FISH CREEK AND BOULDER RIVER					
06030300	Jefferson River tributary No. 2 near Whitehall	Lat 45°52'48", long 111°58'28", SE¼ sec.33, T.2 N., R.3 W., Jefferson County, Hydrologic Unit 10020005, at culvert on State Highway 281, 6 mi (10 km) east of Whitehall.	4.50	1958-80	1980	---	c
		BOULDER RIVER BASIN					
06031950	Cataract Creek near Basin	Lat 46°17'10", long 112°14'33", in NW¼SW¼ sec.9, T.6 N., R.5 W., Jefferson County, Hydrologic Unit 10020006, on bridge on county road 200 ft (61 m) upstream from Big Limber Gulch, 2.1 mi (3.4 km) northeast of Basin.	30.6	1973-80	5-07-80	2.06	180
		MADISON RIVER BASIN					
06038550	Cabin Creek near West Yellowstone	Lat 44°52'19", long 111°20'29", in NW¼SE¼ sec.15, T.11 W., R.3 E., Gallatin County, Hydrologic Unit 10020007, at U.S. Forest Service Cabin Creek Campground on U.S. Highway 287, 12.8 mi (20.6 km) west of U.S Highway 191, 19 mi (31 km) northwest of West Yellowstone.	30.3	1974-80	5-26-80	2.04	340
		GALLATIN RIVER BASIN					
06043300	Logger Creek near Gallatin Gateway	Lat 45°27'17", long 111°14'38", in SW¼ sec.28, T.4 S., R.4 E., Gallatin County, Hydrologic Unit 10020008, at culvert on U.S. Highway 191, 10 mi (16 km) south of Gallatin Gateway.	2.48	1959-80	6-20-80	.57	13
06046500	Rocky Creek near Bozeman	Lat 45°39'17", long 110°56'33", in NE¼ sec.23, T.2 S., R.6 E., Gallatin County, Hydrologic Unit 10020008, 5 mi (8 km) east of Bozeman.	50.5	1951-53† 1956-57 1959-80	4-26-80	3.06	820
		SIXTEENMILE CREEK BASIN					
06053050	Lost Creek near Ringling	Lat 46°45'38", long 110°47'08", in SE¼SE¼ sec.24, T.6 N., R.7 E., Meagher County, Hydrologic Unit 10030101, on bridge on U.S. Highway 89, 1 mi (2 km) southeast of Ringling.	9.59	1974-80	5-25-80	2.85	120

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft^3/s)
		DEEP CREEK BASIN					
06056300	Cabin Creek near Townsend	Lat 46°20'00", long 111°13'05", in NW¼ sec.27, T.7 N., R.4 E., Broadwater County, Hydrologic Unit 10030101, 100 ft (30 m) upstream from mouth, 14.5 mi (23.3 km) east of Townsend.	11.8	1960-80	6-06-80	0.86	14
		SPOKANE CREEK BASIN					
06058700	Mitchell Gulch near East Helena	Lat 46°34'20", long 111°49'21", in NW¼ sec.2, T.9 N., R.2 W., Lewis and Clark County, Hydrologic Unit 10030101, at culvert on U.S. Highway 12, 4.7 mi (7.6 km) east of East Helena.	8.09	1959-80	4-12-80	-.57	28
		WEGNER CREEK BASIN					
06071600	Wegner Creek at Craig	Lat 47°04'35", long 111°57'17", in NW¼ sec.11, T.15 N., R.3 W., Lewis and Clark County, Hydrologic Unit 10030102, at bridge on U.S. Highway 91, 0.9 mi (1.4 km) east of Craig.	35.7	1960-80	5-25-80	1.89	270
		DEARBORN RIVER BASIN					
06073600	Black Rock Creek near Augusta	Lat 47°17'28", long 112°09'46", in NE¼NW¼ sec. 30, T.18 N., R.4 W., Lewis and Clark County, Hydrologic Unit 10030102, at culvert 0.1 mi (0.2 km) north of Bowmans Corner on U.S. Highway 287, 17.5 mi (28.2 km) southeast of Augusta.	5.54	1974-80	5-30-80	4.99	190
		SMITH RIVER BASIN					
06076700	Sheep Creek near Neihart	Lat 46°47'59", long 110°42'10", in SE¼ sec.15, T.12 N., R.8 E., Meagher County, Hydrologic Unit 10030103, at culvert on U.S. Highway 89, 10 mi (16 km) south of Neihart.	5.23	1960-80	5-03-80	1.62	75
06077300	Trout Creek near Eden	Lat 47°07'10", long 111°22'19", in NE¼SE¼ sec.29, T.15 N., R.3 E., Cascade County, Hydrologic Unit 10030103, at bridge on county road, at old town site of Millegan, 16.2 mi (26.1 km) south of Secondary Highway 330, 18.0 mi (29.0 km) south of Eden.	13.2	1974-80	6-06-80	2.67	38
06077800	Goodman Coulee near Eden	Lat 47°19'29", long 111°25'35", in center of sec.12, T.18 N., R.2 E., Cascade County, Hydrologic Unit 10030103, at culvert on county road, 8 mi (13 km) northwest of Eden.	22.1	1959-80	5-25-80	d6.07	e 89
		BELT CREEK BASIN					
06090550	Little Otter Creek near Raynesford	Lat 47°15'05", long 110°43'50", in SW¼NW¼ sec.8, T.17 N., R.8 E., Judith Basin County, Hydrologic Unit 10030105, at culvert on Secondary Highway 427, 1.0 mi (1.6 km) south of Raynesford.	39.5	1974-80	3-09-80	4.84	86

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi²)	Period of record	Annual maximum Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft³/s)
		SHONKIN CREEK BASIN					
06090810	Ninemile Coulee near Fort Benton	Lat 47°42'01", long 110°42'12", in SE¼SE¼ sec.34, T.23 N., R.8 E., Chouteau County, Hydrologic Unit 10030102, at culverts on county road, 8.4 mi (13.5 km) south of Missouri River bridge at Fort Benton, and 8.5 mi (13.7 km) south of Fort Benton (revised).	16.9	1972-80	5-25-80	7.52	320
		MARIAS RIVER BASIN					
06097100	Blacktail Creek near Heart Butte	Lat 48°14'56", long 112°47'19", in NW¼NW¼ sec.28, T.29 N., R.9 W., Pondera County, Hydrologic Unit 10030201, at bridge on county road, 3.3 mi (5.3 km) southeast of Heart Butte, 16.7 mi (26.9 km) northwest of Dupuyer.	16.4	1975-80	5-25-80	2.88	255
06098700	Powell Coulee near Browning	Lat 48°45'01", long 112°45'21", in SE¼NE¼ sec.34, T.35 N., R.9 W., Glacier County, Hydrologic Unit 10030202, at culvert on Secondary Highway 444, 10.5 mi (16.9 km) north of U.S. Highway 2, 18 mi (29 km) northeast of Browning.	12.7	1974-80	5-26-80	2.81	f
06100300	Lone Man Coulee near Valier	Lat 48°14'10", long 112°13'49", in SE¼ sec.27, T.29 N., R.5 W., Pondera County, Hydrologic Unit 10030203, at culvert on county road, 5 mi (8 km) south of Valier.	14.1	1960-80	5-25-80	5.55	100
06101520	Favot Coulee tributary near Ledger	Lat 48°15'47", long 111°42'09", in SE¼SW¼ sec.14, T.29 N., R.1 W., Pondera County, Hydrologic Unit 10030203, at culvert on Highway 366 0.3 mi (0.5 km) east of Higgins School, 5.5 mi (8.9 km) east of Ledger.	.86	1974-80	6-13-80	2.10	24
06101700	Fey Coulee tributary near Chester	Lat 48°27'31", long 111°04'47", near center of east line of sec.9, T.31 N., R.5 E., Liberty County, Hydrologic Unit 10030203, at culvert on county road, 3.5 mi (5.6 km) south of Tiber Siding on Great Northern Railway and U.S. Highway 2, 6.5 mi (10.5 km) southwest of Chester.	2.47	1963-80	5-25-80	3.43	64
06105800	Bruce Coulee tributary near Choteau	Lat 47°44'07", long 112°15'05", near center of sec.21, T.23 N., R.5 W., Teton County, Hydrologic Unit 10030205, at bridge on county road 1.2 mi (1.9 km) west of State Highway 287, 6 mi (10 km) southwest of Choteau.	1.70	1963-80	5-25-80	2.06	118
		LITTLE SANDY CREEK BASIN					
06109530	Little Sandy Creek tributary near Virgelle	Lat 48°05'15", long 109°56'34", in NW¼NW¼ sec.21, T.27 N., R.14 E., Chouteau County, Hydrologic Unit 10040101, at culvert on county road, 11 mi (18 km) east of Highway 236, 10 mi (16 km) southeast of Big Sandy (revised).	.80	1972 1974-80	6-27-80	1.39	3

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum	
						Gage height (ft)	Discharge (ft^3/s)
		ALKALI COULEE BASIN					
06109560	Alkali Coulee tributary near Virgelle	Lat 48°03'19", long 110°05'21', in SW¼NW¼ sec.21, T.27 N., R.13 E., Chouteau County, Hydrologic Unit 10040101, at bridge on county road, 2.1 mi (3.4 km) south of Highway 236, 9.1 mi (14.6 km) southeast of Big Sandy.	0.96	1974-80	3-14-80	1.37	3
		JUDITH RIVER BASIN					
06111700	Mill Creek near Lewistown	Lat 46°59'44", long 109°26'49", in NE¼ sec.9, T.14 N., R.18 E., Fergus County, Hydrologic Unit 10040103, at culverts on county road, 5 mi (8 km) south of Lewistown.	3.14	1960-80	3-31-80	.13	4
06112800	Bull Creek tributary near Hilger	Lat 47°15'10", long 109°21'51", in NW¼NE¼ sec.12, T.17 N., R.18 E., Fergus County, Hydrologic Unit 10040103, at culvert on county road, 0.4 mi (0.6 km) west of Hilger.	.99	1974-80	3-31-80	d2.01	e 4
06114550	Wolf Creek tributary near Coffee Creek	Lat 47°17'56", long 110°07'57", in NE¼NE¼ sec.25, T.18 N., R.12 E., Judith Basin County, Hydrologic Unit 10040103, at culverts on county road, 1.8 mi (2.9 km) east of Highway 230, 4 mi (6 km) southwest of Coffee Creek.	1.73	1974-80	5-25-80	2.14	6
		DOG CREEK BASIN					
06114900	Taffy Creek tributary near Winifred	Lat 47°39'06", long 109°15'33", in SW¼NW¼ sec.26, T.22 N., R.19 E., Fergus County, Hydrologic Unit 10040101, at culvert on county road, 8.5 mi (13.7 km) northeast of Winifred.	2.47	1974-80	5-25-80	1.65	11
		DUVAL CREEK BASIN					
06115300	Duval Creek near Landusky	Lat 47°45'17", long 108°42'23", in center of sec.13, T.23 N., R.23 E., Phillips County, Hydrologic Unit 10040104, at culvert on U.S. Highway 191, 10.0 road mi (16.1 km) north of Fred Robinson Bridge over the Missouri River, 11 mi (18 km) southwest of Landusky (revised).	3.31	1963-80	5-25-80	1.86	14
		MUSSELSHELL RIVER BASIN					
06117800	Big Coulee near Martinsdale	Lat 46°33'00", long 110°18'52", in SW¼SW¼ sec.11, T.9 N., R.11 E., Meagher County, Hydrologic Unit 10040201, at culvert on county road, 4.3 mi (6.9 km) north of U.S. Highway 12 and turnoff to Martinsdale, 6.5 mi (10.5 km) north of Martinsdale (revised).	2.86	1972 1974-80	5-25-80	4.08	17
06120800	Antelope Creek tributary No. 2 near Harlowton	Lat 46°27'47", long 109°49'29", in SE¼ sec.10, T.8 N., R.15 E., Wheatland County, Hydrologic Unit 10040201, at E.S. Bacon ranch, 1.5 mi (2.4 km) north of Harlowton.	21.2	1956-80	6-15-80	4.01	1,100

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft^3/s)
		MUSSELSHELL RIVER BASIN--Continued					
06123200	Spring Creek tributary near Harlowton	Lat 46°11'35", long 109°54'10", in NW¼NW¼ sec.18, T.5 N., R.15 E., Sweet Grass County, Hydrologic Unit 10040201, at culverts on U.S. Highway 191, 17 mi (27 km) south of Harlowton.	2.10	1971 1973-80	6-15-80	1.35	6
06124600	East Fork Roberts Creek tributary near Judith Gap	Lat 46°40'51", long 109°40'24", in SE¼SW¼ sec.26, T.11 N., R.16 E., Wheatland County, Hydrologic Unit 10040201, at culvert on Secondary Highway 248, 3.5 mi (5.6 km) east of Judith Gap.	.74	1974-80	6-15-80	2.00	12
06125520	Swimming Woman Creek tributary near Living Springs	Lat 46°36'24", long 109°21'33", in SW¼SW¼ sec.20, T.10 N., R.19 E., Golden Valley County, Hydrologic Unit 10040201, at culvert on county road, 2.3 mi (3.7 km) east of county line, 12.5 mi (20.1 km) northeast of Hedgesville, 19.5 mi (31.4 km) east of Judith Gap (revised).	1.73	1974-80	6-15-80	g	e 1
06125680	Big Coulee Creek tributary near Cushman	Lat 46°14'50", long 109°01'58", in SE¼SE¼ sec.24, T.6 N., R.21 E., Golden Valley County, Hydrologic Unit 10040201, at culvert on county road, 3.0 mi (4.8 km) south of Cushman, 5.5 mi (8.8 km) southwest of Lavina.	1.23	1974-80	6-15-80	g	e 2
06127505	Fish Creek near Musselshell	Lat 46°27'25", long 108°06'36", in NW¼SW¼ sec.9, T.8 N., R.29 E., Musselshell County, Hydrologic Unit 10040202, at culvert on county road, 2.5 mi (4.0 km) southwest of Hawk Creek road, 4.5 mi (7.2 km) southwest of Musselshell (revised).	17.8	1974-80	6-15-80	g	.5
06127520	Home Creek near Sumatra	Lat 46°38'14", long 107°37'12", in SE¼NW¼ sec.7, T.10 N., R.33 E., Rosebud County, Hydrologic Unit 10040202, 100 ft (31 m) upstream from U.S. Highway 12, 3.7 mi (6.0 km) northwest of Sumatra.	1.98	1973-80	5-25-80	2.05	70
06127570	Butts Coulee near Melstone	Lat 46°38'49", long 107°49'15", in center of E½ sec.9, T.10 N., R.31 E., Musselshell County, Hydrologic Unit 10040202, at culvert on county road, 2.8 mi (4.5 km) north of U.S. Highway 12, 4 mi (6 km) northeast of Melstone.	6.71	1963-80	5-30-80	g	e 1
06127585	Little Wall Creek tributary near Flatwillow	Lat 46°45'36", long 108°36'24", in SE¼NW¼ sec.32, T.12 N., R.25 E., Petroleum County, Hydrologic Unit 10040202, at culvert on U.S. Highway 87, 1.7 mi (2.7 km) north of junction with Highway 244, 20.5 mi (33.0 km) southeast of Grass Range (revised).	3.95	1974-80	4-11-80	1.41	1

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum Gage height (ft)	Dis-charge (ft^3/s)
		MUSSELSHELL RIVER BASIN--Continued					
06128500	South Fork Bear Creek tributary near Roy	Lat 47°13'44", long 108°47'54", in SW¼ sec.16, T.17 N., R.23 E., Fergus County, Hydrologic Unit 10040204, at culvert on State Highway 19, 1.7 mi (2.7 km) north of South Fork Bear Creek, 8.7 road mi (14.0 km) south of U.S. Highway 191, 10.5 mi (16.9 km) southeast of Roy, and 14 mi (22.5 km) north of Grass Range (revised).	5.40	1962-80	6-06-80	1.25	1
06129800	Gorman Coulee tributary near Cat Creek	Lat 47°00'45", long 108°05'33", in SE¼SW¼ sec.31, T.15 N., R.29 E., Petroleum County, Hydrologic Unit 10040204, at culvert on State Highway 20, 6 mi (10 km) southwest of Cat Creek.	.81	1955-80	6-13-80	3.53	180
06130610	Bair Coulee near Mosby	Lat 47°03'15", long 107°36'43", in NE¼NE¼ sec.23, T.15 N., R.32 E., Garfield County, Hydrologic Unit 10040205, at bridge on U.S. Highway 200, 6.8 mi (10.9 km) southwest of Sand Springs, 9.0 mi (14.5 km) northeast of Mosby.	1.79	1974-80	1974		a420
					1975		a 19
					1976		a 20
					1977		a 54
					1978		a260
					1979		a 16
					6-13-80	4.27	334
06130620	Blood Creek tributary near Valentine	Lat 47°20'12", long 108°27'48", in SW¼NW¼ sec.7, T.18 N., R.26 E., Fergus County, Hydrologic Unit 10040205, at culvert on county road 3.0 mi (4.8 km) northeast of Valentine, 16 mi (26 km) east of State Highway 19, 23 mi (37 km) east of Roy (revised).	1.97	1974-80	1980	--	c
		BIG DRY CREEK					
06130850	Second Creek tributary No. 2 near Jordan	Lat 47°12'23", long 106°48'56", in NE¼ sec.25, T.17 N., R.38 E., Garfield County, Hydrologic Unit 10040105, at culvert on State Highway 22, 9.5 mi (15.3 km) southeast of Jordan.	2.08	1958-80	3-22-80	.56	10
06130915	Russian Coulee near Jordan	Lat 47°19'58", long 106°42'39", in NE¼SW¼ sec.11, T.18 N., R.39 E., Garfield County, Hydrologic Unit 10040105, at bridge on U.S. Highway 200, 9.4 mi (15.1 km) east of Jordan.	3.45	1974-80	6-13-80	g	1
06130925	Thompson Creek tributary near Cohagen	Lat 46°57'05", long 106°27'38", in NW¼SW¼ sec.19, T.14 N., R.42 E., Garfield County, Hydrologic Unit 10040106, 100 ft (30 m) downstream from bridge, 1.3 mi (2.1 km) northeast of Thompson Creek, 10.5 mi (16.9 km) southeast of Cohagen, 11 mi (18 km) northeast of county line, 14.1 mi (22.7 km) northeast of Rock Springs (revised).	1.23	1974-80	6-27-80	1.95	20
06130940	Spring Creek tributary near Van Norman	Lat 47°14'58", long 106°18'21", in NW¼NE¼ sec.12, T.17 N., R.42 E., Garfield County, Hydrologic Unit 10040106, at culvert on county road, 7.2 mi (11.6 km) south of State Highway 200, 8 mi (13 km) southeast of Van Norman, 20.6 mi (33.1 km) northeast of Cohagen.	1.39	1974-80	1980	--	c

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum	
						Gage height (ft)	Discharge (ft^3/s)
		TIMBER CREEK BASIN					
06131100	Timber Creek tributary near Van Norman	Lat 47°23'32", long 106°10'15", in SE¼NE¼ sec.23, T.19 N., R.43 E., McCone County, Hydrologic Unit 10040104, at culvert on State Highway 24, 4.7 mi (7.6 km) north of State Highway 200, 12 mi (19 km) east of Van Norman.	0.74	1974-80	6-13-80	2.27	31
		MCGUIRE CREEK BASIN					
06131300	McGuire Creek tributary near Van Norman	Lat 47°36'22", long 106°09'12", in NE¼SE¼ sec.2, T.21 N., R.43 E., McCone County, Hydrologic Unit 10040104, at culvert on State Highway 24, 0.7 mi (1.1 km) south of McGuire Creek, 19 mi (31 km) north of State Highway 200, 20.5 mi (33.0 km) northeast of Van Norman.	.79	1974-80	6-07-80	2.23	35
		MILK RIVER BASIN					
06132400	Dry Fork Milk River near Babb	Lat 48°49'50", long 113°12'02", in SE¼ sec.32, T.36 N., R.12 W., Glacier County, Hydrologic Unit 10050001, at bridge on State Highway 464, 11 mi (18 km) east of Babb.	17.9	1962-80	5-26-80	1.80	217
06134800	Van Cleeve Coulee tributary near Sunburst	Lat 48°53'05", long 111°49'20", on north line of NE¼ sec.14, T.36 N., R.2 W., Toole County, Hydrologic Unit 10030203, at culvert on county road, 3.7 road mi (6.0 km) east of Interchange on Interstate 15 at Sunburst.	10.8	1963-80	5-26-80	2.35	42
06136400	Spring Coulee tributary near Simpson	Lat 48°56'36", long 110°12'51", in SW¼SW¼ sec.24, T.37 N., R.12 E., Hill County, Hydrologic Unit 10050002, at culvert on Highway 232, 1.3 mi (2.1 km) northwest of Simpson, 0.7 mi (1.1 km) north of mile post 39, 38 mi (61 km) northwest of Havre (revised).	2.49	1972 1974-80	1980	---	c
06137600	Sage Creek tributary No. 2 near Joplin	Lat 48°54'38", long 110°46'20", in NE¼NE¼ sec.2, T.36 N., R.7 E., Liberty County, Hydrologic Unit 10050006, at culvert on Highway 224, 0.7 mi (1.1 km) north of Sage Creek, 5.9 mi (9.5 km) north of end of pavement, 25.2 mi (40.5 km) north of Joplin (revised).	2.21	1974-80	5-25-80	1.60	5
06138700	South Fork Spring Coulee near Havre	Lat 48°24'33", long 109°49'44", in NE¼ sec.31, T.31 N., R.15 E., Hill County, Hydrologic Unit 10050005, at culvert on county road, 12 mi (19 km) southwest of Havre.	6.47	1960-80	6-27-80	.37	4
06153400	Fifteenmile Creek tributary near Zurich	Lat 48°38'36", long 109°02'50", in SE1/4 SE1/4 sec.1, T.33 N., R.21 E., Blaine County, Hydrologic Unit 10050004, at culvert on county road, 4.3 mi (6.9 km) north of U.S. Highway 2, 4.3 mi (6.9 km) north of Zurich (revised).	1.40	1974-80	1980	---	c

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum	
						Gage height (ft)	Discharge (ft^3/s)
		MILK RIVER BASIN--Continued					
06154350	Peoples Creek tributary near Lloyd	Lat 48°11'33", long 109°18'25", in SW¼SE¼ sec.8, T.28 N., R.19 E., Blaine County, Hydrologic Unit 10050009, at culvert on county road, 1.6 mi (2.6 km) south of Peoples Creek, 8 mi (13 km) south of Lloyd, 9 mi (14 km) southwest of Cleveland (revised).	2.51	1974-80	3-15-80	4.08	5
06155300	Disjardin Coulee near Malta	Lat 48°16'33", long 107°57'49", in SE¼NW¼ sec.16, T.29 N., R.29 E., Phillips County, Hydrologic Unit 10050004, at bridge on U.S. Highway 191, 8 mi (13 km) southwest of Malta.	4.84	1956-80	3-15-80	.85	15
06155600	Murray Coulee tributary near Hogeland	Lat 48°47'16", long 108°44'50", in SW¼SE¼ sec.17, T.35 N., R.23 E., Blaine County, Hydrologic Unit 10050010, at culverts on county road, 6.5 mi (10.5 km) southwest of Hogeland, 13.6 mi (22.9 km) north of State Highway 241, 18.4 mi (29.6 km) northeast of Harlem.	1.77	1974-80	3-20-80	.10	2
06156100	Lush Coulee near Whitewater	Lat 48°41'10", long 107°41'25", in SE¼SE¼ sec.20, T.34 N., R.31 E., Phillips County, Hydrologic Unit 10050011, at culverts on county road, 3 mi (5 km) north of State Highway 242, 6 mi (10 km) southwest of Whitewater.	9.58	1972 1974-80	3-27-80	.90	15
06164600	Beaver Creek tributary near Zortman	Lat 47°55'38", long 108°21'07", in NE¼NE¼ sec.15, T.25 N., R.26 E., Phillips County, Hydrologic Unit 10050014, at bridge on State Highway 191, 0.3 mi (0.5 km) northeast of turnoff to Zortman, 8 mi (13 km) east of Zortman (revised).	3.89	1974-80	3-26-80	1.55	20
06165200	Beaver Creek tributary No. 2 near Malta	Lat 48°14'34", long 107°32'58", in SW¼NE¼ sec.27, T.29 N., R.32 E., Phillips County, Hydrologic Unit 10050014, at culvert on county road, 11 mi (18 km) south of Bowdoin, 17 mi (27 km) southeast of Malta, and 18 mi (29 km) southwest of Saco (revised).	1.95	1974-80	1980	---	c
06172300	Unger Coulee near Vandalia	Lat 48°22'11", long 106°47'37", in SW¼ sec.9, T.30 N., R.38 E., Valley County, Hydrologic Unit 10050012, at bridge on U.S. Highway 2, 4.5 mi (7.2 km) northeast of Vandalia.	11.1	1958-80	1980	---	c
06173300	Willow Creek tributary near Fort Peck	Lat 47°53'36", long 106°53'22", in SE¼NE¼ sec.25, T.25 N., R.37 E., Valley County, Hydrologic Unit 10050012, at culvert on county road, 6.8 mi (10.9 km) west of Pines Recreation area turnoff, 19.8 mi (31.9 km) southwest of State Highway 24, 21.5 mi (34.6 km) southwest of Fort Peck (revised).	.86	1972 1974-80	1980	---	c
06174300	Milk River tributary No. 3 near Glasgow	Lat 48°12'17", long 106°33'05", in SW¼SW¼ sec.3, T.28 N., R.40 E., Valley County, Hydrologic Unit 10050012, at upstream end of culvert on county road, 1.4 mi (2.9 km) east of State Highway 247, 4 mi (6 km) northwest of Glasgow (revised).	1.82	1974-80	3-20-80	1.08	1

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum	
						Gage height (ft)	Dis-charge (ft^3/s)
		MILK RIVER BASIN--Continued					
06174600	Snow Coulee at Opheim	Lat 48°50'27", long 106°24'47", in SE¼SE¼ sec.25, T.36 N., R.40 E., Valley County, Hydrologic Unit 10050016, at culvert on FAS Route 247, 1 mi (2 km) south of Opheim.	3.11	1972 1974-80	4-03-80	1.70	7
		WOLF CREEK BASIN					
06175700	East Fork Wolf Creek near Lustre	Lat 48°24'58", long 105°47'51", in SE¼ sec.30, T.31 N., R.46 E., Valley County, Hydrologic Unit 10060001, at culverts on county road, 4 mi (6 km) east of Lustre.	9.61	1956-80	1980	---	c
06175900	Wolf Creek tributary No. 2 near Wolf Point	Lat 48°12'05", long 105°44'45", in sec.11, T.28 N., R.46 E., Roosevelt County, Hydrologic Unit 10060001, at bridge on county road, 9.5 mi (15.3 km) northwest of Wolf Point.	6.10	1955-80	4-30-80	3.71	e5
		TRIBUTARY BETWEEN WOLF CREEK AND TULE CREEK					
06176950	Missouri River tributary No. 6 near Wolf Point	Lat 48°03'23", long 105°33'22", in NW¼NW¼ sec.32, T.27 N., R.48 E., McCone County, Hydrologic Unit 10060001, on the left bank at upstream end of culvert on county road, 1.2 mi (1.9 km) west of State Highway 13, 5 mi (8 km) southwest of Wolf Point (revised).	.53	1973-80	1980	---	c
		TULE CREEK BASIN					
06177020	Tule Creek tributary near Wolf Point	Lat 48°14'40", long 105°29'31", in SE¼SE¼ sec. 21, T.29 N., R.48 E., Roosevelt County, Hydrologic Unit 10060001, on the right bank at upstream end of culvert, on county road 0.2 mi (0.3 km) east of State Highway 13, 8.6 mi (13.8 km) north of U.S. Highway 2, 12 mi (20 km) northeast of Wolf Point (revised).	.74	1974-80	1980	---	c
		REDWATER RIVER BASIN					
06177050	East Fork Duck Creek near Brockway	Lat 47°11'14", long 105°47'09", in sec.31, T.17 N., R.47 E., McCone County, Hydrologic Unit 10060002, at bridge on county road, 8 mi (13 km) south of Brockway.	12.4	1955-80	6-13-80	1.73	155
06177700	Cow Creek tributary near Vida	Lat 47°42'34", long 105°29'24", in SE¼ sec.36, T.23 N., R.48 E., McCone County, Hydrologic Unit 10060002, at bridge on State Highway 13, 8.8 mi (14.2 km) south of Vida, and 20 mi (32 km) northeast of Circle (revised).	1.71	1963-80	1980	---	c
06177720	West Fork Sullivan Creek near Richey	Lat 47°31'47", long 105°13'43", in NW¼NW¼ sec.4, T.20 N., R.51 E., Dawson County, Hydrologic Unit 10060002, at culvert on county road, 2.5 mi (4.0 km) south of Highway 200, 11 mi (18 km) southwest of Richey, 19 mi (31 km) northeast of Circle (revised).	13.8	1974-80	1980	---	c

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Dis-charge (ft^3/s)
		REDWATER RIVER BASIN--Continued					
06177800	Wolf Creek tributary near Vida	Lat 47°54'49", long 105°29'53", in SE¼ sec.15, T.25 N., R.48 E., McCone County, Hydrologic Unit 10060002, at bridge on State Highway 13, 5.5 mi (8.8 km) north of Vida, and 11.1 mi (17.9 km) south of Missouri River bridge near Wolf Point, (revised).	0.91	1962-80	1980	---	c
06177820	North Fork Creek tributary near Richey	Lat 47°52'28", long 104°56'10", in SE¼NE¼ sec.36, T.25 N., R.52 E., Richland County, Hydrologic Unit 10060002, at culvert on county road, 14.5 mi (23.3 km) northwest of Enid, 15.3 mi (24.6 km) north of Highway 200, and 17 mi (27 km) northeast of Richey (revised).	.74	1974-80	3-15-80	2.45	21
		POPLAR RIVER BASIN					
06179100	Butte Creek tributary near Four Buttes	Lat 48°48'33", long 105°35'08", in SE¼SE¼ sec.5, T.35 N., R.47 E., Daniels County, Hydrologic Unit 10060003, attached to wooden post on left bank at upstream end of culvert on FAS Route 248, 1 mi (2 km) east of Four Buttes (revised).	1.60	1972 1974-80	3-23-80	d1.61	e1
		BIG MUDDY CREEK BASIN					
06182700	Middle Fork Big Muddy Creek near Flaxville	Lat 48°48'08", long 105°06'48", in SW¼NE¼ sec.12, T.35 N., R.50 E., Daniels County, Hydrologic Unit 10060006, on left downstream piling of bridge on State Highway 5, 2.8 mi (4.5 km) east of Flaxville (revised).	3.12	1972 1974-80	3-29-80	d2.29	e5
06183300	Spring Creek near Plentywood	Lat 48°48'45", long 104°28'16", in SE¼ sec.1, T.35 N., R.55 E., Sheridan County, Hydrologic Unit 10060006, at culvert on county road, 5 mi (8 km) northeast of Plentywood.	7.05	1955-80	1980	---	c
06184200	Lost Creek tributary near Homestead	Lat 48°24'09", long 104°29'49", in NW¼NW¼ sec.31, T.31 N., R.56 E., Sheridan County, Hydrologic Unit 10060006, at upstream side of culvert on State Highway 16, 2.3 mi (3.7 km) southeast of Homestead, 4.6 mi (7.4 km) north of Froid (revised).	1.90	1972 1974-80	1980	---	c
		TRIBUTARY BETWEEN BIG MUDDY CREEK AND YELLOWSTONE RIVER					
06185400	Missouri River tributary No. 5 at Culbertson	Lat 48°09'31", long 104°30'55", in SE¼ sec.20, T.28 N., R.56 E., Roosevelt County, Hydrologic Unit 10060005, at culvert on State Highway 16, at Culbertson Rodeo grounds, 0.7 mi (1.1 km) north of U.S. Highway 2 (revised).	3.67	1963-80	4-15-80	.16	1
		YELLOWSTONE RIVER BASIN					
06201700	Hump Creek near Reed Point	Lat 45°42'33", long 109°35'35", in NE¼ sec.35, T.1 S., R.17 E., Sweet Grass County, Hydrologic Unit 10070004, at bridge on Interstate Highway 90 and U.S. Highway 10, 2 mi (3 km) west of Reed Point.	7.61	1960-80	4-01-80	2.09	98

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi²)	Period of record	Date	Annual maximum	
						Gage height (ft)	Discharge (ft³/s)
		YELLOWSTONE RIVER BASIN--Continued					
06205100	Allen Creek near Park City	Lat 45°35'43", long 109°03'22", in NE¼ sec.7, T.3 S., R.22 E., Stillwater County, Hydrologic Unit 10070004, about 200 ft (61 m) upstream from Cove ditch flume, 7 mi (11 km) west of Park City.	7.17	1961-80	2-18-80	1.94	9
06207600	Jack Creek tributary near Belfry	Lat 45°09'44", long 108°49'24", in SE¼SE¼ sec.6, T.8 S., R.24 E., Carbon County, Hydrologic Unit 10070006, on railroad bridge 100 ft (30 m) upstream from U.S. Highway 310, 9 mi (14 km) east of Belfry, 11.5 mi (18.5 km) northwest of Warren (revised).	.85	1975-80	1979 3-31-80	---- 2.63	a90 34
06214150	Mills Creek at Rapelje	Lat 45°58'03", long 109°15'17", in SE¼NE¼ sec.32, T.3 N., R.20 E., Stillwater County, Hydrologic Unit 10070004, at culvert on Secondary Highway 306, 0.4 mi (0.6 km) south of Rapelje.	3.32	1974-80	3-14-80	2.15	12
06216200	West Wets Creek near Billings	Lat 45°37'38", long 108°24'14", in SW¼ sec.28,T.2 S.,R.27 E., Yellowstone County, Hydrologic Unit 10070008, at bridge on county road, 19 mi (31 km) southeast of Billings.	8.80	1955-80	3-28-80	1.40	48
06217300	Twelvemile Creek near Shepherd	Lat 45°55'16", long 108°27'44", in NW¼SW¼ sec.14, T.2 N., R.26 E., Yellowstone County, Hydrologic Unit 10070007, at culverts on U.S. Highway 87, 5.6 mi (9.0 km) north of junction with old Highway 10, 6.0 mi (9.7 km) west of Shepherd.	9.05	1973-80	6-15-80	2.05	140
06217700	Crooked Creek tributary near Shepherd	Lat 46°04'23", long 108°30'09", in SW¼ sec.21, T.4 N., R.26 E., Yellowstone County, Hydrologic Unit 10070007, at bridge on county road, 1.7 mi (2.7 km) west of U.S. Highway 87 between Billings and Roundup, 12 mi (19 km) northwest of Shepherd, 20 mi (32 km) north of Billings.	7.21	1962-80	6-15-80	-.15	2
06290200	Little Bighorn River tributary near Wyola	Lat 45°08'18", long 107°23'08", in SE¼NW¼ sec.14, T.8 S., R.35 E., Big Horn County, Hydrologic Unit 10080016 at left bank along side of private road, 0.3 mi (0.5 km) east of U.S. Highway 87, 0.8 mi (1.3 km) northeast of Wyola (revised).	4.43	1973-80	5-10-80	2.75	78
06293300	Long Otter Creek near Lodgegrass	Lat 45°26'15", long 107°23'42", near center of line between NE¼ and NW¼ of SE¼ sec.28, T.4 S., R.35 E., Big Horn County, Hydrologic Unit 10080016, at culvert on U.S. Highway 87, 10 mi (16 km) north of Lodgegrass.	11.7	1973-80	3-31-80	2.07	27
06294400	Andresen Coulee near Custer	Lat 46°03'53", long 107°32'30", in center of W½ sec.30, T.4 N., R.34 E., Yellowstone County, Hydrologic Unit 10080015, at culvert on State Highway 47, 4.5 mi (7.2 km) south of Custer, and 5.3 road mi (8.5 km) south of Highways 10 and 312 (revised).	a2.35	1963-80	5-10-80	.87	14

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi²)	Period of record	Date	Annual maximum	
						Gage height (ft)	Dis-charge (ft³/s)
		YELLOWSTONE RIVER BASIN--Continued					
06294600	Tullock Creek tributary near Hardin	Lat 45°47'52", long 107°15'40", in NW¼NW¼ sec.33, T.1 N., R.36 E., Big Horn County, Hydrologic Unit 10080015, at culvert on State Highway 384, 18 mi (30 km) northeast of Hardin.	8.63	1973-80	5-10-80	0.80	2
06294930	Sarpy Creek tributary near Colstrip	Lat 45°54'54", long 107°07'57", in in SW¼SW¼ sec.16, T.2 N., R.37 E., Treasure County, Hydrologic Unit 10100001, at culvert on county road, 0.1 mi (0.2 km) north of Treasure and Big Horn county line, 25 mi (40 km) west of Colstrip (revised).	4.44	1972-80	3-13-80	1.35	7
06294960	Anderson Creek at Vananda	Lat 46°23'35", long 107°00'27", in SE¼NE¼ sec.6, T.7 N., R.38 E., Rosebud County, Hydrologic Unit 10100002, at bridge on U.S. Highway 12, at Vananda.	5.71	1973-80	5-31-80	1.63	53
06294985	East Fork Armells Creek tributary near Colstrip	Lat 46°04'01", long 106°42'39", in SE¼SE¼ sec.26, T.4 N., R.40 E., Rosebud County, Hydrologic Unit 10100001, at bridge on State Highway 315, 13 mi (21 km) north of Colstrip.	1.87	1973-80	6-15-80	3.55	4
06295020	Short Creek near Forsyth	Lat 46°17'44", long 106°40'05", in NW¼ sec.12, T.6 N., R.40 E., Rosebud County, Hydrologic Unit 10100001, at bridge on county road, 2 mi (3 km) north of Forsyth, 2.4 mi (3.9 km) northeast of U.S. Highway 12.	3.23	1962-80	9-12-80	3.87	240
06296115	Reservation Creek near Miles City	Lat 46°22'38", long 105°58'21", in SE¼NE¼ sec.9, T.7 N., R.46 E., Custer County, Hydrologic Unit 10100001, at culvert on county road No. 446, 6.5 mi (10.5 km) southwest of Miles City.	6.29	1973-80	6-11-80	3.99	260
06306900	Spring Creek near Decker	Lat 45°05'09", long 106°50'12", in SW¼NW¼SE¼ sec. 33, T.8 S., R.40 E., Big Horn County, Hydrologic Unit 10090101, at culverts on county road, 5 mi (8 km) north of Decker at site of water-quality station.	34.7	1958-80	a7-29-79 5-25-80	a1.82 .47	a120 10
06306950	Leaf Rock Creek near Kirby	Lat 45°11'16", long 106°54'50", in center of sec.35, T.7 S., R.39 E., Big Horn County, Hydrologic Unit 10090101, at culvert on county road, 10 mi (16 km) south of Kirby.	4.53	1958-80	6-14-80	.30	7
06307520	Canyon Creek near Birney	Lat 45°14'28", long 106°40'32", in SW¼ sec.11, T.7 S., R.41 E., Rosebud County, Hydrologic Unit 10090101, at county bridge 11 mi (18 km) southwest of Birney.	50.2	1972-80	6-14-80	2.93	300
06307620	Tie Creek near Birney	Lat 45°28'21", long 106°31'33", in SW¼SE¼ sec.22, T.4 S., R.42 E., Rosebud County, Hydrologic Unit 10090102, at bridge on State Highway 315, 11 mi (18 km) north of Birney.	18.7	1973-80	6-15-80	2.22	37

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

						Annual maximum	
Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Gage height (ft)	Discharg (ft^3/s
		YELLOWSTONE RIVER BASIN--Continued					
06307700	Cow Creek near Fort Howes ranger station, near Otter	Lat 45°17'20", long 106°09'14", in in SW¼NW¼ sec.30, T.6 S., R.46 E., Powder River County, Hydrologic Unit 10090102, at bridge on county road, 0.8 mi (1.3 km) south of Fort Howes Ranger Station, and 6.6 mi (10.6 km) north of Otter Creek Post Office (revised).	8.37	1972-80	6-15-80	1.23	4
06307720	Brian Creek near Ashland	Lat 45°24'37", long 106°09'07", in SW¼SW¼ sec.11, T.5 S., R.45 E., Powder River County, Hydrologic Unit 10090102, at culvert on county road, 8.1 mi (13.0 km) north of Fort Howes Ranger Station 13.5 mi (21.7 km) south of Ashland (revised).	8.03	1973-80	6-15-80	g	e1
06307780	Stebbins Creek at mouth, near Ashland	Lat 45°38'27", long 106°17'34", in NW¼ sec.27, T.2 S., R.44 E., Rosebud County, Hydrologic Unit 10090102, at bridge on county road along west side of Tongue River, 3.5 mi (5.6 km) northwest of Ashland, and 3.6 mi (5.8 km) north of U.S. Highway 212 (revised).	19.9	1963-80	6-15-80	2.92	110
06307930	Jack Creek near Volborg	Lat 46°04'55", long 105°51'08", in NE¼NW¼ sec.26, T.4 N., R.47 E., Custer County, Hydrologic Unit 10090102, at bridge on State Highway 332, 19 mi (31 km) northwest of Volborg.	5.47	1973-80	6-19-80	3.54	185
06308100	Sixmile Creek tributary near Epsie	Lat 45°31'27", long 105°45'10", in SW¼SW¼ sec.36, T.3 S., R.48 E., Powder River County, Hydrologic Unit 10090102, at culvert on U.S. Highway 212, 5.2 mi (8.4 km) northwest of Epsie.	.24	1973-80	6-14-80	2.55	8
06308200	Basin Creek tributary near Volborg	Lat 45°53'11", long 105°41'12", in NW¼ sec.31, T.2 N., R.49 E., Custer County, Hydrologic Unit 10090102, at culvert on county road, 3.5 mi (5.6 km) north of Volborg.	.14	1955-80	6-15-80	g	e2
06308330	Deer Creek tributary near Volborg	Lat 46°02'04", long 105°31'15", in extreme southwest corner of sec.4, T.3 N., R.50 E., Custer County, Hydrologic Unit 10090102, at culvert on county road, 3 mi (5 km) east of U.S. Highway 312, 16 mi (26 km) northeast of Volborg.	1.65	1973-80	3-23-80	1.06	2
06308340	LaGrange Creek near Volborg	Lat 46°06'17", long 105°33'20", in NE¼NW¼ sec.18, T.4 N., R.50 E., Custer County, Hydrologic Unit 10090102, at culvert near mile post 27 on U.S. Highway 312, 19 mi (31 km) north of Volborg.	3.66	1973-80	6-15-80	2.66	35
06309060	North Sunday Creek tributary No. 2 near Angela	Lat 46°34'00", long 106°03'51", in NE¼ sec.4, T.9 N., R.45 E., Custer County, Hydrologic Unit 10100001, at culvert on State Highway 22, 13 mi (21 km) southeast of Angela, 14.1 mi (22.7 km) northwest of Yellowstone River bridge at Miles City, 15 mi (24 km) northwest of Miles City (revised).	.22	1962-80	6-15-80	4.31	115

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft^3/s)
		YELLOWSTONE RIVER BASIN--Continued					
06309078	Tree Creek near Kinsey	Lat 46°33'17", long 105°47'48", in NE¼NW¼ sec.10, T.9 N., R.47 E., Custer County, Hydrologic Unit 10100001, at culvert on county road, 5.3 mi (8.5 km) north of road to Kinsey, 6.5 mi (10.5 km) west of Kinsey, and 10.9 mi (17.5 km) northeast of State Highway at Miles City (revised).	4.13	1972 1974-80	6-15-80	2.51	16
06309080	Deep Creek near Kinsey	Lat 46°33'25", long 105°37'12", in SE¼SE¼ sec.1, T.9 N., R.48 E., Custer County, Hydrologic Unit 10100001, at culvert on Interstate Highway 94 and U.S. Highway 10, 2 mi (3 km) southeast of Kinsey, 3.1 mi (5.0 km) southwest of Shirley railroad station, and 13 mi (21 km) northeast of Miles City (revised).	11.5	1962-80	7-13-80	1.46	54
06324700	Sand Creek near Broadus	Lat 45°25'48", long 105°26'28", in SE¼ sec.5, T.5 S., R.51 E., Powder River County, Hydrologic Unit 10090207, at culverts on Moorhead road, 1.8 mi (2.9 km) southwest of Broadus.	10.2	1955-80	1980	--	c
06324995	Badger Creek at Biddle	Lat 45°05'46", long 105°20'17", in SW¼NW¼ sec.34, T.8 S., R.52 E., Powder River County, Hydrologic Unit 10090208, at culvert on State Highway 59, 0.2 mi (0.3 km) south of Biddle.	6.06	1972-80	2-27-80	1.53	9
06325400	East Fork Little Powder River tributary near Hammond	Lat 45°18'04", long 105°05'50", in NW¼SE¼ sec.22, T.6 S., R.54 E., Powder River County, Hydrologic Unit 10090208, at culvert on State Highway 212, 4.0 mi (6.4 km) northwest of Boyes, 10 mi (16 km) northwest of Hammond, 18 mi (29 km) southeast of Broadus (revised).	3.45	1974-80	6-01-80	6.00	48
06325700	Powder River tributary near Powderville	Lat 45°48'46", long 105°03'51", in NE¼NE¼ sec.25, T.1 N., R.53 E., Custer County, Hydrologic Unit 10090209, at culvert on county road, 2 mi (3 km) north of Custer-Powder River county line, and 4.5 mi (7.2 km) north of Powderville (revised).	3.20	1973-80	3-15-80	2.29	22
06325950	Cut Coulee near Mizpah	Lat 46°08'38", long 105°10'05", in NE¼SW¼ sec.36, T.5 N., R.52 E., Custer County, Hydrologic Unit 10090209, at culvert on county road, 8.5 mi (13.7 km) southeast of Mizpah.	2.23	1973-80	8-16-80	4.29	108
06326510	Locate Creek tributary near Locate	Lat 46°25'52", long 105°10'51", in SW¼SE¼ sec.23, T.8 N., R.52 E., Custer County, Hydrologic Unit 10090209, at culvert on U.S. Highway 12, 5.5 mi (8.9 km) east of Locate, 6.4 mi (10.3 km) east of Locate, and 6.5 mi (10.5 km) east of Powder River bridge (revised).	.91	1973-80	8-15-80	a	e2
06326550	Cherry Creek tributary near Terry	Lat 46°51'18", long 105°20'26", in NE¼SW¼ sec.25, T.13 N., R.50 E., Prairie County, Hydrologic Unit 10100004, at bridge on abandoned part of State Highway 253, 4.8 mi (7.7 km) north of Terry.	2.52	1973-80	6-13-80	4.10	175

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Date	Annual maximum Gage height (ft)	Annual maximum Discharge (ft^3/s)
		YELLOWSTONE RIVER BASIN--Continued					
06326580	Lame Jones Creek tributary near Willard	Lat 46°11'40", long 104°33'05", in SE¼SE¼ sec.11, T.5 N., R.57 E., Fallon County, Hydrologic Unit 10100005, at culvert on county road, 1.1 mi (1.8 km) east of Lame Jones School, 8.8 mi (14.2 km) west of Willard.	0.49	1974-80	1980	--	c
06326600	O'Fallon Creek near Ismay	Lat 46°25'17", long 104°45'40", near center of east edge of sec.30, T.8 N., R.56 E., Fallon County, Hydrologic Unit 10100005, at bridge on U.S. Highway 12, 6.5 mi (10.5 km) southeast of Ismay, 11.5 mi (18.5 km) west of Plevna, and at site of continuous-record station.	669	1962-80	8-17-80	g	32
06326800	Pennel Creek near Baker	Lat 46°29'57", long 104°14'17", in center of south edge of sec.36, T.9 N., R.59 E., Fallon County, Hydrologic Unit 10100005, at culvert on State Highway 7, 7.8 mi (12.6 km) north of Highway 12 in Baker, and 8 mi (13 km) north of Baker (revised).	1.00	1962-80	8-17-80	1.74	10
06326940	Spring Creek tributary near Fallon	Lat 46°48'06", long 104°59'25", in NE¼NE¼ sec.13, T.12 N., R.53 E., Prairie County, Hydrologic Unit 10100004, at culvert on county road, 6.8 mi (10.9 km) southeast of Fallon.	3.10	1972-80	8-16-80	1.13	1
06326950	Yellowstone River tributary No. 5 near Marsh	Lat 46°57'11", long 104°53'53", in SW¼ sec.21, T.14 N., R.54 E., Dawson County, Hydrologic Unit 10100004, at culvert on Interstate Highway 94 and U.S. Highway 10, 2.4 mi (3.9 km) northeast of Cracker Box Creek, 2.5 mi (4.0 km) southwest of Clear Creek, 5 mi (8 km) northeast of Marsh.	.87	1962-80	6-13-80	6.70	195
06326960	Timber Fork Creek tributary near Lindsay	Lat 47°10'55", long 105°10'16", in SW¼SW¼ sec.36, T.17 N., R.51 E., Dawson County, Hydrologic Unit 10100004, at culvert on county road, 3.3 mi (5.3 km) southwest of Lindsay.	1.23	1974-80	8-16-80	1.28	6
06327550	South Fork Horse Creek tributary near Wibaux	Lat 46°48'09", long 104°22'55", in SW¼SE¼ sec.11, T.12 N., R.58 E., Wibaux County, Hydrologic Unit 10100004, at culvert on county road, 7.5 mi (12.1 km) west of State Highway 7, 16.0 mi (25.7 km) southwest of Wibaux.	1.73	1973-80	1980	--	c
06327720	Griffith Creek tributary near Glendive	Lat 47°06'20", long 104°35'48", in NE¼NW¼ sec.35, T.16 N., R.56 E., Dawson County, Hydrologic Unit 10100004, at culvert on Interstate Highway 94, 5 mi (8 km) east of Glendive.	3.48	1965 1974-80	6-06-80	4.73	104
06327790	Krug Creek tributary No. 2 near Wibaux	Lat 47°00'23", long 104°18'13", in NW¼NW¼ sec.6, T.14 N., R.59 E., Wibaux County, Hydrologic Unit 10100004, at culvert on county road at Interstate Highway 94 interchange, 5.5 mi (8.9 km) west of Wibaux.	.49	1974-80	1980	--	c
06328100	Yellowstone River tributary No. 6 near Glendive	Lat 47°09'26", long 104°39'14", in NW¼SW¼ sec.8, T.16 N., R.56 E., Dawson County, Hydrologic Unit 10100004, at bridge on county road to Belle Prairie, 3 mi (5 km) northeast of Glendive.	2.93	1974-80	1974 1976 1979 6-06-80	-- a3.03 -- 2.70	a17 -- a25 108

See footnotes at end of table, p. 611.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (mi^2)	Period of record	Annual maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
06328400	Thirteenmile Creek tributary near Bloomfield	Lat 47°24'46", long 104°49'58", in SE¼SE¼ sec.9 T.19 N., R.54 E., Dawson County, Hydrologic Unit 10100004, at culvert on county road, 3.9 mi (6.3 km) east of Bloomfield.	0.67	1972 1974-80	1980	--	c
06329350	Alkali Creek tributary near Sidney	Lat 47°30'34, long 104°07'03", in SW¼NE¼ sec.7, T.20 N., R.60 E., Richland County, Hydrologic Unit 10100004, at culvert on county road, 7.7 mi (12.4 km) south of O'Brien Creek, 12.8 mi (20.6 km) south of State Highway 23, 14.8 mi (23.8 km) southeast of junction to State Highway 23 and State Highway 16, 14.2 mi (22.8 km) southeast of Sidney (revised).	.49	1974-80	3-17-80	1.09	4
06329510	Fox Creek tributary near Lambert	Lat 47°38'58", long 104°36'52", in NW¼ SW¼ sec.24, T.22 N., R.55 E., Richland County, Hydrologic Unit 10100004, at bridge on county road, 2.2 mi (3.5 km) south of Lambert.	5.01	1972 1974-80	1980	--	c
06329570	First Hay Creek near Sidney	Lat 47°50'08", long 104°16'16", in SE¼ sec.16, T.24 N., R.58 E., Richland County, Hydrologic Unit 10100004, at bridge on State Highway 16, 4.1 road mi (6.6 km) north of "Dryland Crop and Soils Research Station" sign, 10 mi (16 km) northwest of Sidney.	29.1	1963-80	1980	--	c
		LITTLE MISSOURI RIVER BASIN					
06334100	Wolf Creek near Hammond	Lat 45°09'53", long 104°45'20", in SE¼ sec.5, T.8 S., R.57 E., Carter County, Hydrologic Unit 10110201 at culvert on U.S. Highway 212, 8 mi (13 km) southeast of Hammond.	9.09	1955-80	8-16-80	1.59	3
06334330	Little Missouri River tributary near Albion	Lat 45°12'42", long 104°15'41", in SW¼NW¼ sec.21, T.7 S., R.61 E., Carter County, Hydrologic Unit 10110201, at culvert on FAS Route 270, 1.8 mi (2.9 km) north of Albion.	.74	1972-80	1980	--	c
06334610	Box Elder Creek tributary near Albion	Lat 45°23'20", long 104°28'38", in SE¼ sec.19, T.5 S., R.59 E., Carter County, Hydrologic Unit 10110202 at culvert on State Highway 323, 17 mi (27 km) northwest of Albion.	.73	1973-80	1980	--	c
06334625	Coal Creek near Mill Iron	Lat 45°54'15", long 104°21'42", in NW¼SW¼ sec.26, T.2 N., R.59 E., Carter County, Hydrologic Unit 10110202, at culvert on county road, 8 mi (13 km) northwest of Mill Iron, 8.5 mi (13.7 km) east of State Highway 7, 9.0 mi (14.5 km) east of Ekalaka.	.74	1974-80	4-16-80	1.62	4
06334720	Soda Creek tributary near Webster	Lat 46°00'34", long 104°05'30", in NE¼ sec.23, T.3 N., R.61 E., Fallon County, Hydrologic Unit 10110202, at culvert, on county road, 0.3 mi (0.5 km) south of Soda Creek and 8 mi (13 km) southeast of Webster (revised).	2.22	1962-80	3-23-80	1.14	2

† Operated as a continuous-record station.
a Revised.
b Includes an estimated 15 ft^3/s by-pass flow.
c No evidence of flow during year.
d Backwater.
e About
f Not determined.
g Peak discharge did not reach bottom of gage.

Measurements at miscellaneous sites

Measurements of streamflow at points other than gaging stations are given in the following table.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Missouri River basin				
Sevenmile Creek 06064000	Tenmile Creek	Lat 46°38'13", long 112°05'00", on section-line between sections 10 and 11, T.10 N., R.4 W., Lewis and Clark County, 1.4 mi (2.3 km) upstream from Tenmile Creek, and 4 mi (6 km) northwest of Helena.		1978-79	5-29-80	27
Sheep Creek 06077000	Smith River	Lat 46°46'05", long 110°48'33", in SW1/4 SW1/4 SE1/4 sec.26, T.12 N, R.7 E., Meagher County, Lewis and Clark National Forest, on right bank 7 mi (11.3 km) upstream from Moose Creek and 16 mi (26 km) north of White Sulphur Springs at site of former gaging station.	54.4	‡1941-72 ‡1972-73 1975	6-04-80	a72
					7-10-80	a33
Muddy Creek 06088000	Sun River	Lat 47°42'46", long 111°43'21", in SE1/4 SE1/4 SW1/4 sec.27, T.23 N., R.1 W., Teton County, Hydrologic Unit 10030104, on right bank, 300 ft (91 m) north of State Highway 431 and 1.7 mi (2.7 km) west of Power, MT.		1935-39	5-27-80	88
					7-01-80	54
Missouri River 474415109232001	Mississippi River	Lat 47°44'15", long 109°23'20", in SE1/4 SE1/4 NE1/4 sec.27, T.23 N., R.18 E., Fergus County, a Stafford Ferry crossing, 0.45 mi (0.72 km) downstream from Sugarloaf Rock, 12 mi (19 km) north of Winifred, MT.			7-09-80	13,500
					7-24-80	8,830
					9-02-80	5,660
		Musselshell River basin				
Rehder Creek 06126450	Musselshell River	Lat 46°18'41", long 108°29'03", in NE1/4 SW1/4 SW1/4 sec.33, T.7 N., R.25 E., Musselshell County, 100 ft (30 m) upstream from mouth, and 6.5 mi (10.5 km) southeast of Klein, at site of water-quality station.	23.1	1978-79	10-18-79	0
					11-07-79	0
					12-05-79	0
					2-12-80	0
					3-17-80	0
					4-15-80	0
					6-16-80	0
					7-15-80	0
					8-14-80	0
					9-10-80	0
East Parrot Creek 06127150	Parrot Creek	Lat 46°22'55", long 108°20'15", in SW1/4 SW1/4 sec.3, T.7 N., R.27 E., Musselshell County, Hydrologic Unit 10040202, 5.15 mi (8.29 km) upstream from mouth, and 11 mi (18 km) southeast of Roundup, at site of water-quality station.	20.2	1978-79	10-18-79	.24
					11-06-79	.37
					12-04-79	.4
					1-10-80	0
					2-12-80	0
					3-17-80	0
					4-15-80	.06
					5-25-80	0
					5-26-80	0.15
					6-16-80	b 0.02
					7-14-80	b .01
					8-12-80	0
					9-09-80	0
West Parrot Creek 06127160	Parrot Creek	Lat 46°25'57", long 108°25'07", in NW1/4 NE1/4 SW1/4 sec.24, T.8 N., R.26 E., Musselshell County, 1.0 mi (1.6 km) upstream from mouth, and 4.5 mi (7.2 km) east of Roundup, at site of water-quality station.	20.5	1978-79	10-17-79	.58
					11-06-79	.66
					12-04-79	.46
					1-09-80	.53
					2-12-80	.58
					3-17-80	.47
					4-15-80	.37
					5-28-80	.34
					6-16-80	.31
					7-15-80	.19
					8-12-80	.15
					9-09-80	.15

See footnotes at end of table, p. 621.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Musselshell River basin--Continued				
Fattig Creek 06127300	Musselshell River	Lat 46°29'58", long 108°16'40", in NE1/4 NE1/4 NE1/4 sec.24, T.7 N., R.27 E., Musselshell County, approximately 5 mi (8 km) upstream from Carters Coulee, and 11.5 mi (18.5 km) south of Delphia, at site of water-quality station.	22.9	1978-79	10-17-79	0.24
					11-06-79	.14
					12-04-79	.12
					1-10-80	0
					2-12-80	0
					3-17-80	0
					4-15-80	b .04
					5-25-80	.31
					6-16-80	.11
					7-14-80	.08
					8-12-80	.05
					9-09-80	.05
		Big Dry Creek Basin				
Crow Rock Creek 06130935	Little Dry Creek	Lat 47°03'45", long 106°14'11", in SE1/4 SE1/4 SE1/4 sec.11, T.15 N., R.43 E., Garfield County, on right bank at county road, 2.6 mi (4.2 km) upstream from mouth, 16.5 mi (26.6 km) north of Rock Springs, at site of water-quality station.	213	1978-79	10-17-79	0
					2-05-80	0
					3-13-80	b< .01
					3-19-80	c .004
					4-01-80	0
					5-06-80	0
					6-13-80	0
					6-17-80	10.5
					7-01-80	0
					7-10-80	0
					8-11-80	0
					8-18-80	0
					8-29-80	0
Little Dry Creek 06130950	Big Dry Creek	Lat 47°20'22", long 106°21'47", in NE1/4 NE1/4 NE1/4 sec.9, T.18 N, R.42 E., Garfield County, at bridge on State Highway 200, 0.8 mi (1.3 km) upstream from mouth, 1.5 mi (2.4 km) southeast of Van Norman at site of water-quality station.	1,224	1958-73 1976-77	3-25-80	23
					4-03-80	9.1
					4-22-80	4.2
					5-12-80	1.8
					6-12-80	2.0
					7-29-80	.08
					8-28-80	.31
		Milk River basin				
Beaver Creek 06166000	Milk River	Lat 48°22', long 107°35', in SW1/4 NW1/4 sec.16, T.30 N., R.32 E., Phillips County, at county highway bridge 2.5 mi (4.0 km) southeast of Bowdoin.			5-30-80	0
					6-24-80	0
					7-24-80	0
McEachern Creek 06170000	Rock Creek	Lat 48°59'30", long 106°55'40", in SW1/4 sec.1, T.37 N., R.36 E., Valley County, Hydrologic Unit 10050015, on left bank, 0.5 mi (0.8 km) south of international boundary, and 8 mi (13 km) north of Thoeny at site of water-quality station.	182	‡1924-76 1978-79	4-02-80	9.0
					4-09-80	9.2
					4-16-80	.41
		Redwater River basin				
Redwater Creek 06177150	Missouri River	Lat 47°18'16", long 105°45'57", in NW1/4 sec.20, T.18 N., R.47 E., McCone County, at bridge on county road, 0.2 mi (0.3 km) northwest of Brockway, MT, at site of former crest-stage gage.	216		10-25-79	.52
Redwater River 06177500	Missouri River	Lat 47°24'51", long 105°34'30", in SW1/4 SW1/4 sec. 11, T.19 N., R.48 E., McCone County, Hydrologic Unit 10060002, on left bank at Circle, 1 mi (2 km) upstream from Horse Creek, and at mile 79.6 (128.1 km).	547	‡1929-72 ‡1974-79	10-25-79	.64
Redwater River 473036105253101	Missouri River	Lat 47°30'36", long 105°25'31", in SE1/4 SE1/4 sec.02, T.20 N., R.49 E., McCone County, at bridge crossing 10 mi (16 km) northeast of Circle.			10-25-79	1.5
Redwater River 473748105192901	Missouri River	Lat 47°37'48", long 105°19'29", in SE1/4 sec.29, T.22 N., R.50 E., Dawson County, at county road bridge crossing just upstream from Cow Creek, and 12 mi (19 km) west of Richey.			10-25-79	3.3

See footnotes at end of table, p. 621.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Redwater River basin--continued				
Redwater River 474242105150001	Missouri River	Lat 47°42'42", long 105°15'00", in NW1/4 NW1/4 sec.36, T.23 N., R.50 E., Dawson County, 150 ft (46 m) upstream from county road bridge, 10 mi (16 km) northwest of Richey.			10-25-79	4.2
Redwater River 474947105150401	Missouri River	Lat 47°49'47", long 105°15'04", in NW1/4 sec.24, T.24 N., R.50 E., McCone County, along county road 11 mi (18 km) east of Vida.			10-25-79	6.0
Wolf Creek 475101105153101	Redwater River	Lat 47°51'01", long 105°15'31", in SE1/4 sec. 11, T.24 N., R.50 E., McCone County, at mouth, near county road bridge, 1.3 mi (2.1 km) north of road intersection, 10 mi (16 km) east of Vida.			10-25-79	.04
Redwater River 06177825	Missouri River	Lat 47°54'07", long 105°12'54", in SW1/4 sec.24, T.25 N., R.50 E., McCone County, Hydrologic Unit 10060002, on right bank at downstream side of bridge on FAS Highway 201, 400 ft (122 m) downstream from East Redwater River and 13.7 mi (22.0 km) northeast of Vida post office.	1,974	1975-79	10-25-79	7.6
Redwater River 480111105182001	Missouri River	Lat 48°01'11", long 105°18'20", in NW1/4 NE1/4 SE1/4 sec.7, T.26 N., R.50 E., McCone County, at ranch 2 mi (3 km) south of Nickwall, 27 road mi (43 km) north of Vida.			10-25-79	9.4
Redwater River 480315105125001	Missouri River	Lat 48°03'15", long 105°12'50", in NW1/4 NW1/4 sec.36, T.27 N., R.50 E., McCone County, at county bridge near mouth, about 4 mi (6 km) south of Poplar.			10-25-79	7.4
		Poplar River basin				
Poplar River 490000105460001	Missouri River	Lat 49°00'00", long 105°46'00", in NE1/4 NW1/4 NE1/4 sec.3, T.37 N., R.45 E., Daniels County, at international boundary, 3.2 mi (5.1 km) upstream of Goose Creek, 22 mi (35 km) northwest of Scobey.		1977-78	10-24-79	2.8
Coal Creek 485807105471001	Middle Fork Poplar River	Lat 48°58'07", long 105°47'10", in NW1/4 NW1/4 NE1/4 NE1/4 sec.16, T.37 N., R.45 E., Daniels County, at county road bridge 1.8 mi (2.9 km) southeast of Carbert, and 21 mi (34 km) northwest of Scobey.		1978	10-24-79	1.3
Poplar River 05363601	Missouri River	Lat 48°55'07", long 105°36'36", in SW1/4 SW1/4 NW1/4 sec. 36, T.37 N., ounty, 0.7 mi (1.1 km) south of Silver Lake, at bridge 7.5 mi (12.1 km) north of Four Buttes and 12 mi (19 km) northwest of Scobey.		1977-78	10-24-79	2.2
Poplar River 06178150	Missouri River	Lat 48°52'23", long 105°29'50", in NE1/4 SE1/4 sec. 13, T.36 N., R.47 E., Daniels County, 200 ft (161 m) upstream from county road crossing, 6 mi (10 km) upstream from East Fork, 6.4 mi (10.3 km) northwest of Scobey at site of water-quality station.	572	1975-79	10-24-79	3.4

See footnotes at end of table, p. 621.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		Poplar River basin--continued				
East Poplar River 06178500	Poplar River	Lat 49°00'00", long 105°24'30", in SW1/4 sec.3, T.1, R.26 W., second meridian, Hydrologic Unit 10060003, on left bank 10 ft (3 m) north of international boundary, 400 ft (122 m) southwest of Canadian East Poplar Port of Entry, 20 mi (32 km) upstream from mouth, and 14 mi (23 km) north of Scobey, MT.	534	1931-79	10-24-79	4.2
East Poplar River 485305105230701	Missouri River	Lat 48°53'05", long 105°23'07", in NW1/4 SW1/4 SW1/4 sec. 12, T.36 N., R.48 E., Daniels County, 0.9 mi (1.5 km) north of county road bridge, and 6.6 mi (10.6 km) north of Scobey.		1977-78	10-24-79	6.0
East Fork Poplar River 06179000	Poplar River	Lat 48°51'08", long 105°25'15", in NE1/4 NW1/4 sec.27, T.36 N., R.48 E., Daniels County, Hydrologic Unit 10060003, on right bank at downstream side of bridge on State Highway 13, 2.5 mi (4.0 km) upstream from mouth, and 4 mi (6 km) north of Scobey.	722	‡1735-39, ‡1975-79	10-24-79	5.1
East Poplar River 485001105261601	Poplar River	Lat 48°50'01", long 105°26'16", in SE1/4 NE1/4 SW1/4 NE1/4 sec. 33, T.36 N., R.48 E., Daniels County, 1.5 mi (2.4 km) southwest of State Highway 13 bridge and 2.9 mi (4.7 km) northwest of Scobey.		1978	10-24-79	5.6
Poplar River 484924105273101	Missouri River	Lat 48°49'24", long 105°27'31", in NE1/4 NW1/4 NE1/4 sec.5, T.35 N., R.48 E., Daniels County, downstream 0.05 mi (0.08 km) from County bridge, and 2.7 mi (4.3 km) northwest of Scobey.		1977-78	10-24-79	8.5
Butte Creek 484759105293801	Poplar River	Lat 48°47'59", long 105°29'38", in SW1/4 SE1/4 NW1/4 SW1/4 sec.7, T.35 N., R.48 E., Daniels County, downstream from railroad trestle 0.02 mi (0.32 km) and 3.4 mi (5.5 km) west of Scobey.		1978	10-24-79	2.1
Poplar River 484708105270601	Missouri River	Lat 48°47'08", long 105°27'06", in SW1/4 NW1/4 SW1/4 sec.16, T.35 N., R.48 E., Daniels County, 0.1 (0.2 km) downstream from county bridge, 1.0 mi (1.6 km) downstream from Butte Creek, and 1.5 mi (2.4 km) west of Scobey.		1977-78	10-24-79	11
Poplar River 484328105251701	Missouri River	Lat 48°43'28", long 105°25'17" sec.3, T.34 N., R.48 E., Daniels County, at bridge on State Highway 13, 4.2 mi (6.7 km) south of Scobey.		1939, 1978	10-24-79	3.9
Poplar River 483721105224801	Missouri River	Lat 48°37'21", long 105°22'48", in NE1/4 SW1/4 SE1/4 SW1/4 sec.12, T.33 N., R.48 E., Daniels County, 30 mi (21 km) south of Scobey.			10-24-79	7.8
Poplar River 06179200	Missouri River	Lat 48°33'05", long 105°21'55", in NW1/4 SW1/4 SW1/4 sec.4, T.32 N., R.49 E., Roosevelt County, at county road bridge, 3.8 mi (6.1 km) upstream from West Fork, 4.4 mi (7.1 km) northwest of Bredette, at site of water-quality station.	1,745	1976-79	10-18-79 10-24-79 11-27-79 12-11-79 1-08-80 3-26-80 4-02-80 4-30-80 6-24-80 7-31-80 8-20-80 9-18-80	9.37 10.4 16.4 14.2 6.9 b 25.0 250 24 2.9 1.4 3.4 2.3

See footnotes at end of table, p. 621.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Poplar River basin-continued				
est Fork oplar River 6179500	Poplar River	Lat 49°00'00", long 106°22'00", in SE1/4 sec.5, T.1 N., R.3 W., Third meridian, at West Poplar Canadian Customs Post, 100 ft (30 m) north of international boundary, 6 mi (10 km) upstream from Roanwood Coulee, 10 mi (16 km) north of Opiem, at site of water-quality station.	139	‡1931-35, ‡1938-51, ‡1975-79	10-24-79	0.46
est Fork oplar River 485621106151001	Poplar River	Lat 48°56'21", long 106°15'10", in NW1/4 NE1/4 NW1/4 NW1/4 sec.30, T.37 N., R.42 E., Valley County, 500 ft (152 m) downstream from county bridge, 0.15 mi (0.24 km) downstream from Roanwood Creek, 4 mi (6 km) south of international boundary, and 6.5 mi (10.5 km) north of Glentana, MT.			10-24-79	.88
West Fork Poplar River 485439106114401	Poplar River	Lat 48°54'39", long 106°11'44", in SW1/4 SE1/4 SW1/4 SW1/4 sec.33, T.37 N., R.42 E., Valley County, 2 mi (3 km) northwest of county line, 6 mi (10 km) south of international boundary, and 7 mi (11 km) northeast of Glentana, MT.			10-24-79	1.2
West Fork Poplar River 485052106034501	Poplar River	Lat 48°50'52", long 106°03'45", in SE1/4 NW1/4 SW1/4 NW1/4 sec.26, T.36 N., R.43 E., Daniels County, 0.75 mi (1.21 km) southwest of Zimmer Ranch, and 2 mi (3 km) north of Richland.			10-24-79	2.3
West Fork Poplar River 484502105553301	Poplar River	Lat 48°45'02", long 105°55'53", in SE1/4 NW1/4 NE1/4 NW1/4 sec.35, T.35 N., R.44 E., Daniels County, downstream side of ford at county road crossing, about 8 mi (13 km) southwest of Peerless.			10-24-79	4.0
West Fork Poplar River 484145105494901	Poplar River	Lat 48°41'45", long 105°49'49", in SE1/4 NE1/4 SW1/4 SE1/4 sec.16, T.34 N., R.45 E., Daniels County, at county bridge, 4 mi (6 km) above Hell Creek, and 4.2 mi (6.8 km) south of Peerless.			10-24-79	5.3
West Fork Poplar River 483945105423301	Poplar River	Lat 48°39'45", long 105°42'33", in NW1/4 SW1/4 NE1/4 NW1/4 sec.33, T.34 N., R.46 E., Daniels County, at cement ford, 2.2 mi (3.5 km) north of Fort Peck Indian Reservation, and about 18 mi (29.0 km) southwest of Scobey.			10-24-79	7.1
West Fork Poplar River 06180400	Poplar River	Lat 48°33'01", long 105°25'42", in SW1/4 SW1/4 sec.1, T.32 N., R.48 E., Roosevelt County, at bridge on State Highway 13, 5.9 mi (9.5 km) upstream from mouth, and 6.6 mi (10.6 km) northwest of Bredette.	1,010	1954, 1976-79	10-18-79 10-24-79 11-27-79 12-11-79 3-26-80 4-02-80 4-30-80 6-24-80 7-31-80 8-20-80 9-18-80	4.9 7.0 9.4 9.1 b 5.0 b20 15 2.4 .61 2.5 b 2.5
Poplar River 482902105191601	Missouri River	Lat 48°29'02", long 105°19'16", in NE1/4 NE1/4 sec.34, T.32 N., R.49 E., Roosevelt County, 1.5 mi (2.4 km) southwest of Bredette, and about 27 mi (43 km) north of Poplar.			10-24-79	18

See footnotes at end of table, p. 621.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
		Poplar River basin--continued				
Poplar River 060180500	Missouri River	Lat 48°25', long 105°12', in SW1/4 sec.27, T.31 N., R.50 E., Roosevelt County, 11 mi (18 km) southeast of Bredette, 12 mi (19 km) downstream from West Fork, 24 mi (39 km) north of Poplar, and at site of former gaging station.		1954 ‡1934-47	10-25-79	20
Poplar River 481608105051101	Missouri River	Lat 48°16'08", long 105°05'11", in NE1/4 sec.16, T.29 N., R.51 E., Roosevelt County, 0.4 mi (0.6 km) west of Route 251, 11.5 mi (18.5 km) north of U.S. Highway 2, 12 mi (19 km) north of Poplar.			10-25-79	22
Poplar River 06181000	Missouri River	Lat 48°10'15", long 105°10'42", in NE1/4 NE1/4 sec.19, T.28 N., R.51 E., Roosevelt County, on right bank 4 mi (6 km) north of Poplar and 11 mi (17 km) upstream from mouth, at site of former gaging station.	3,174	1908-24, 1947-69, 1975-79	10-25-79	24
					11-26-79	46
					12-11-79	24
					1-08-80	17
					3-28-80	96
					4-17-80	128
					5-01-80	52
					6-24-80	10
					7-31-80	1.0
					8-21-80	12
					9-18-80	1.3
Poplar River 4806561051150	Missouri River	Lat 48°06'56", long 105°11'50", in NW1/4 SW1/4 SE1/4 SE1/4 sec.1, T.27 N., R.50 E., Roosevelt County, at American Legion Park just north of Poplar.	3,270	1912, 1954	10-25-79	23
		Yellowstone River Basin				
Yellowstone River 454537109461701	Missouri River	Lat 45°45'37", long 109°46'17", in NW1/4 NE1/4 SE1/4 sec.8, T.1 S., R.16 E., Sweet Grass County, at county bridge 0.6 mi (0.9 km) southeast of Greycliff, MT and 2 mi (3 km) downstream of Sweetgrass Creek.			6-10-80	1 ,900
					8-08-80	4,080
					9-03-80	3,390
Yellowstone River 453742109151601	Missouri River	Lat 45°37'42", long 109°15'16", in SE1/4 NE1/4 SE1/4 sec.28, T.2 S., R.20 E., Stillwater County, at State Highway 307 bridge, 5 mi (8 km) south of Columbus, MT, and 1.6 mi (2.5 km) downstream of Stillwater River.			6-10-80	10,900
					8-06-80	5,310
					9-15-80	4,760
Huntley Project Drain No. 7 455936108102201	Diverts from Yellowstone River	Lat 45°59'36", long 108°10'22", in NW1/4 NE1/4 SW1/4 sec.19, T.3 N., R.29 E., Yellowstone County, at downstream side of bridge on farm road, 0.25 mi (0.40 km) upstream from mouth, 2.2 mi (3.5 km) northwest of Worden, at site of water-quality station.		1977-79	10-16-79	3.9
					11-28-79	.98
					12-27-79	.78
					1-31-80	.37
					2-26-80	.56
					3-27-80	.49
					4-29-80	.46
					6-03-80	2.4
					6-26-80	6.1
					7-31-79	e 6.9
					8-27-80	e 3.7
					9-24-80	e 2.0
East Fork Armells Creek 06294980	Armells Creek	Lat 45°58'42", long 106°38'38", in SE1/4 SW1/4 SW1/4 sec.28, T.3 N., R.41 E., Rosebud County, on private road bridge, 0.9 mi (1.4 km) downstream from Corral Creek 6.7 mi (10.8 km) north of Colstrip at site of water-quality station.	97.3	1975-78	10-18-79	.83
					11-06-79	.30
					12-11-79	.46
					1-09-80	.49
					2-22-80	1.3
					3-19-80	2.3
					4-16-80	.80
					5-21-80	b 0.04
					6-17-80	4.1
					7-09-80	0
					8-13-80	0
					9-17-80	0

See footnotes at end of table, p. 621.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Yellowstone River basin--continued				
Cow Creek 06295380	Rosebud Creek	Lat 45°51'51", long 106°27'02", in NW1/4 SW1/4 SE1/4 sec.1, T.1 N., R.42 E., Rosebud County, Hydrologic Unit 10100003, at private road ford, 0.2 mi (0.3 km) downstream from confluence of South Fork, 4.2 mi (6.8 km) upstream from mouth, and 8.4 mi (13.5 km) southeast of Colstrip.	27.2		10-17-79	0.11
					11-07-79	.17
					1-08-80	0
					3-20-80	.99
					4-17-80	.29
					5-22-80	b .06
					6-19-80	b .8
					7-09-80	0
					9-17-80	0
Snider Creek 06295420	Rosebud Creek	Lat 45°55'39", long 106°23'02", in S1/2 NE1/4 sec.16, T.2 N., R.43 E., Rosebud County, at county road crossing, 0.3 mi (0.5 km) upstream from mouth, and 7.8 mi (12.6 km) northwest of Brandenberg, at site of water-quality-station.	12.7	1978-79	10-17-79	0
					11-07-79	0
					12-13-79	0
					1-08-80	0
					2-21-80	0
					3-20-80	0
					4-17-80	0
					5-22-80	0
					6-19-80	0
					7-09-80	0
					8-13-80	0
					9-17-80	0
Spring Creek 06306900	Tongue River	Lat 45°05'09", long 106°50'12", in SE1/4 sec.33, T.8 S., R.40 E., Big Horn County, at bridge on county road, 1 mi (2 km) upstream from mouth, 5 mi (8 km) north of Decker, at site of water-quality station.	34.7	1978-79	10-23-79	0
					11-14-79	0
					12-18-79	0
					1-30-80	0
					2-20-80	8.6
					3-26-80	0
					4-23-80	0
					7-15-80	0
					9-10-80	0
Hanging Woman Creek 06307540	Tongue River	Lat 45°00'07", long 106°25'29", in NE1/4 NW1/4 NE1/4 sec.2, T.10 S., R.43 E., Big Horn County, 0.5 mi (0.8 km) north of WY-MT Stateline, 18.5 mi (29.8 km) southwest of Otter, and 20 mi (32 km) east of Decker.	90.2	1978	10-24-79	0
					11-15-79	0
					12-19-79	0
					1-31-80	0
					2-20-80	9.7
					3-27-80	0
					4-24-80	0
					6-26-80	0
					7-17-80	0
					9-11-80	0
Waddle Creek 06307545	Hanging Woman Creek	Lat 45°02'59", long 106°27'08", in NW1/4 SE1/4 SW1/4 sec.15, T.9 S., R.43 E., Big Horn County, Hydrologic Unit 10090101, at county bridge 0.2 mi (0.3 km) upstream from confluence with Hanging Woman Creek, 16.5 mi (26.5 km) southwest of Otter, and 19.5 mi (31.4 km) south of Birney.			10-24-79	0
					11-16-79	0
					12-19-79	0
					1-31-80	0
					2-20-80	0
					3-27-80	0
					4-24-80	0
					6-05-80	0
					6-26-80	0
					7-17-80	0
					9-11-80	0
Trail Creek 06307550	Hanging Woman Creek	Lat 45°01'38", long 106°18'06", in SW1/4 NW1/4 NW1/4 sec.26, T.9 S., R.44 E., Big Horn County, Hydrologic Unit 10090101, 0.5 mi (0.8 km) above Iron Springs Creek, 14 mi (23 km) southwest of Otter, and 20 mi (32 km) west of Moorhead.			10-24-79	0
					11-15-79	0
					12-19-79	0
					1-31-80	0
					3-27-80	0
					4-24-80	0
					7-17-80	0
					9-11-80	0
East Trail Creek Flume No. 1 450408106215401	Trail Creek	Lat 45°04'08", long 106°21'54", in NE1/4 SE1/4 NE1/4 sec.7, T-9 S., R.44 E., Big Horn County, 6 mi (10 km) southwest of Quietus, 35 mi (56 km) southwest of Otter, 37 mi (60 km) east of Decker.		1977-78	4-24-80	.05
					6-26-80	0
					7-17-80	0

See footnotes at end of table, p. 621.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
		Yellowstone River basin--continued				
East Trail Creek Flume No. 2 450415106231201	Trail Creek	Lat 45°04'15", long 106°23'12", in NW1/4 NE1/4 NE1/4 sec.7, T.9 S., R.44 E., Big Horn County, 6 mi (10 km) southwest of Quietus, 35 mi (56 km) southwest of Otter, 37 mi (60 km) east of Decker.		1977-78	3-27-80 4-24-80	0.10 .02
East Trail Creek Flume No. 4 450409106342501	Trail Creek	Lat 45°04'09", long 106°24'35", in NW1/4 SE1/4 SE1/4 sec.12, T.9 S., R.43 E., Big Horn County, 6 mi (10 km) southwest of Quietus, 35 mi (56 km) southwest of Otter, 37 mi (60 km) east of Decker.		1977-78	3-27-80 4-24-80 6-26-80 7-17-80	b .005 0 0 0
Corral Creek 06307563	Hanging Woman Creek	Lat 45°05'17", long 106°27'51", in SW1/4 NE1/4 NE1/4 sec.4, T.9 S., R.43 E., Big Horn County, Hydrologic Unit 10090101, at county bridge 0.2 mi (0.3 km) upstream from confluence with Hanging Woman Creek, 0.6 mi (1.0 km) below Trail Creek, 15.5 mi (24.9 km) southwest of Otter, and 16.5 mi (26.5 km) south of Birney.			10-24-79 11-15-79 12-19-79 2-20-80 3-27-80 4-24-80 6-05-80 6-26-80 7-17-80 9-11-80	0 0 0 0 0 .007 0 0 0 0
Horse Creek 06307567	Hanging Woman Creek	Lat 45°07'50", long 106°28'32", in SW1/4 NE1/4 NW1/4 sec.21, T.8 S., R.43 E., Big Horn County, Hydrologic Unit 10090101, 0.2 mi (0.3 km) above confluence with Hanging Woman Creek, 14 mi (23 km) south of Birney, and 14.5 mi (23.3 km) southwest of Otter.			10-24-79 2-20-80 3-27-80 6-05-80 6-26-80 7-17-80 9-11-80	0 0 0 0 0 0 0
Hanging Woman Creek 06307570	Tongue River	Lat 45°08'02", long 106°29'00", in SW1/4 SE1/4 SE1/4 sec.17, T.8 S., R.43 E., Big Horn County, on county road bridge, 0.6 mi (1.0 km) downstream from Horse Creek, 0.8 mi (1.3 km) upstream from Circle Bar draw, 13.2 mi (21.2 km) southeast of Birney at site of water-quality station	321	1977-79	10-24-79 12-19-79 2-20-80 3-27-80 4-24-80 6-05-80 6-26-80 7-16-80 9-10-80	.28 .36 4.1 1.5 .17 .50 .29 .22 .10
		Tongue River basin				
Otter Creek 06307665	Tongue River	Lat 45°08'15", long 106°07'22", in NE1/4 NE1/4 SE1/4 sec.18, T.8 S., R.43 E., Powder River County, 0.2 mi (0.3 km) downstream from Pasture Creek, 5.5 mi (8.8 km) upstream from Bradshaw Creek, and 6.2 mi (10.0 km) southeast of Decker, at site of water-quality station.	40.9	1978-79	10-02-79 12-11-79 2-12-80 3-19-80 4-15-80 5-22-80 6-19-80 7-22-80 9-09-80	.03 .09 .07 .87 .46 .16 .13 .02 .02
Otter Creek 06307717	Tongue River	Lat 45°23'29", long 106°08'37", in N1/2 sec.23, T.5 S., R.45 E., Powder River County, on county road bridge, 1.0 mi (1.6 km) upstream from Fifteenmile Creek, and 13.1 mi (21.1 km) northeast of Otter, at site of water-quality station.	451	1978-79	10-03-79 12-11-79 2-12-80 3-19-80 4-15-80 5-22-80 6-19-80 7-22-80 9-11-80	2.7 3.8 4.4 11 9.6 3.4 2.8 1.4 1.5
Home Creek 06307735	Otter Creek	Lat 45°32'35", long 106°11'39", in SE1/4 NE1/4 SE1/4 sec.29, T.3 S., R.45 E., Powder River County, about 150 ft (46 m) west of Otter Creek road culvert, 1.0 mi (1.6 km) upstream from mouth, about 2 mi (3 km) south of Highway 212, 5.1 mi (8.2 km) southeast of Ashland, at site of water-quality station.	58.7	1976-79	10-03-79 12-12-79 2-12-80 3-19-80 4-15-80 5-20-80 6-19-80 7-24-80 8-13-80 8-17-80	c .04 c .09 .01 .23 .15 .07 .07 .008 .01 c .09

See footnotes at end of table, p. 621.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Yellowstone River basin--Continued				
Muster Creek 06309079	Yellowstone River	Lat 46°37'05", long 105°45'08", in NW1/4 SW1/4 SE1/4 sec.13, T.10N., R.47 E., Custer County, on right bank at bridge on Caprock Road, 5.8 mi (9.3 km) northwest of Kinsey, at site of water-quality station.	28.5	1977-79	2-05-80	0
					2-22-80	0
					3-11-80	b< .01
					3-12-80	2.59
					4-01-80	0
					5-06-80	0
					6-12-80	0
					6-13-80	14
					6-13-80	8.18
					6-17-80	b .03
					7-01-80	0
					8-11-80	0
					8-17-80	c .09
					8-29-80	4.79
Custer Creek 06309145	Yellowstone River	Lat 46°42'03", long 105°29'14", in NE1/4 NW1/4 NW1/4 sec.19, T.11 N., R.50 E., Prairie County, on right bank at prairie trail ford, just upstream from railroad bridge, 12.0 mi (19.3 km) northeast of Kinsey, about 0.8 river mi (1.3 km) above mouth, at site of water-quality station.	151	1977-79	10-17-79	0
					2-05-80	0
					3-12-80	1.21
					4-01-80	b 0.2
					4-09-80	0
					5-06-80	0
					6-12-80	0
					6-14-80	.17
					6-17-80	5
					7-10-80	.55
					7-14-80	c .07
					8-11-80	0
					8-17-80	3.34
Locate Creek 06326507	Powder River	Lat 46°25'20, long 105°07'45", in SW1/4 SW1/4 NE1/4 sec.29, T.8 N., R.53 E., Custer County, Hydrologic Unit 10090209, at U.S. Highway 12 bridge, 8.3 mi (13.3 km) east of former town of Locate, 9.0 mi (14.4 km) upstream of confluence with Powder River, 18 mi (29 km) southwest of Ismay, and 26.5 mi (43.1 km) southeast of Terry at site of water-quality station.			12-06-79	0
					12-19-79	0
					1-22-80	0
					2-29-80	0
					3-31-80	0
					4-23-80	0
					5-21-80	0
					6-26-80	0
					7-31-80	0
					8-26-80	0
Yellowstone River 06326530	Missouri River	Lat 46°48'17", long 105°17'36", in SE1/4 SW1/4 sec.10, T.12 N., R.51 E., Prairie County, at bridge on county road, 1.2 mi (1.9 km) northeast of Terry, 11.8 mi (19.0 km) downstream from Powder River at site of water-quality station.	63,447	1974-77	10-17-79	6,180
Cracker Box Creek 465606104562601	Yellowstone River	Lat 46°56'06", long 104°56'26", in SW1/4 SW1/4 SW1/4 sec.30, T.14 N., R.54 E., Dawson County, at culverts on U.S. Highway I-94, 14 mi (23 km) southwest of Glendive.			6-13-80	h6,240
Clear Creek 06326953	Yellowstone River	Lat 47°08'05", long 104°56'31", in SW1/4 SW1/4 NW1/4 sec.6, T.14 N., R.54 E., Dawson County, on left bank at county road crossing, 6.5 mi (10.5 km) northwest of Hoyt, at site of water-quality station.	38.1	1977-79	10-18-79	0
					2-04-80	c .12
					3-12-80	.99
					3-19-80	1.34
					4-10-80	1.42
					5-08-80	.24
					6-05-80	0
					6-13-80	f1,490
					6-14-80	2.67
					6-14-80	b .04
					7-15-80	0
					8-06-80	0
					8-19-80	.39
					8-29-80	b .04

See footnotes at end of table, p. 621.

Discharge measurements made at miscellaneous sites during water year 1980

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		Yellowstone River basin--continued				
Upper Sevenmile Creek 06326995	Yellowstone River	Lat 47°08'17", long 104°56'40", in NW1/4 NE1/4 NE1/4 sec.24, T.16 N., R.53 E., Dawson County, at bridge on gravel road, 0.6 mi (1.0 km) south of State Highway 200, 11.5 mi (18.5 km) west-northwest of Glendive, at site of water-quality station.	137	1977-79	10-18-79	0
					2-04-80	.26
					3-12-80	b< .2
					3-20-80	b .4
					3-28-80	1.02
					4-10-80	.53
					5-08-80	0
					6-05-80	0
					6-14-80	0
					6-16-80	3
					7-15-80	0
					8-06-80	0
					8-19-80	.54
					8-29-80	b .15
					9-16-80	0
Glendive Creek 06327850	Yellowstone River	Lat 47°07'16", long 104°39'51", in SE1/4 NW1/4 NW1/4 sec.29, T.16 N., R.56 E., Dawson County, on frontage road bridge, 2.4 mi (3.9 km) upstream from from mouth, and 1.2 mi (1.9 km) east of Glendive.	300	1977-79	10-17-79	b 0.30
					11-28-79	0
					12-18-79	0
					1-01-80	0
					2-29-80	b 4.0
					3-20-80	24
					4-16-80	b .20
					5-22-80	0
					6-23-80	0
					9-23-80	14
Deer Creek 06328000	Yellowstone River	Lat 47°09'44", long 104°42'08", in SW1/4 NE1/4 NW1/4 sec.12, T.16 N., R.55 E., Dawson County, on right bank at State Highway 16 bridge, 4.0 mi (6.4 km) north of Glendive, and 3.8 mi (6.7 km) northeast of Highway I-94, at site of water-quality station.	198	1921-22, 1977-79	10-18-79	0
					2-04-80	0
					3-12-80	0
					3-19-80	0
					4-02-80	c .01
					5-08-80	0
					6-04-80	0
					6-14-80	.62
					6-16-80	2.12
					7-15-80	0
					8-06-80	0
					8-19-80	4.10
					8-29-80	0
Cottonwood Creek 06329000	Yellowstone River	Lat 47°14'50", long 104°18'15", in E1/2 sec.14, T.17 N., R.58 E., Wibaux County, at road crossing 16.2 mi (26.1 km) southeast of Intake, and 26 mi (42 km) north of Wibaux at site of water-quality station.	85.3	1978-79	10-16-79	0
					11-28-79	0
					12-18-79	0
					1-24-80	0
					2-28-80	0
					3-19-80	2.1
					4-15-80	b .10
					5-21-80	0
					6-24-80	b .05
					8-25-80	0
					9-24-80	0
		Little Missouri River basin				
Little Missouri River 450020104114001	Missouri River	Lat 45°00'20", long 104°11'40", NE1/4 sec.1, T.7 S., R.61 E., Carter County, 1.7 mi (2.7 km) northeast of Blacktail Creek, and 6.5 mi (10.4 km) northeast of Albion, MT.			10-23-79	1.2
Little Missouri River 06334400	Missouri River	Lat 45°26'00", long 104°02'10", SW1/4 sec.34, T.4 S., R.62 E., Carter County, 0.25 mi (0.40 km) downstream from bridge on State Secondary Highway 270, at Capitol.			10-23-79	d 1.1

  Operated as a continuous-record gaging station
a Sampling for Mt. St. Helen's Ash Study
b Estimate
c Parshall Flume measurement
d Operated as a previous low flow partial-record station
e Backwater effected
f Culvert computation

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS STATIONS

Samples are collected at sites other than gaging stations and partial-record stations to give better areal coverage in a river basin. Such sites are referred to as miscellaneous sites.

WATER QUALITY ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SAMP-LING DEPTH (FT) (00003)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
MILK RIVER BASIN										
06170000 MCEACHERN CREEK AT INTERNATIONAL BOUNDARY (LAT 48 59 30 LONG 106 55 40)										
APR , 1980										
02...	1030	9.0	--	70	824	7.0	1.0	.5	140	70
09...	1545	9.2	--	1	539	6.0	11.0	2.5	94	23
16...	1030	.41	--	0	605	7.4	16.0	9.0	120	0
482250107391001 LAKE BOWDOIN NEAR MALTA, MT (LAT 48 22 50 LONG 107 39 10)										
APR , 1980										
25...	0700	--	--	1	--	--	17.0	9.0	1200	520
JUL										
01...	0930	--	4.0	1	--	--	20.0	19.0	1500	730
AUG										
28...	1200	--	4.0	1	--	--	19.0	16.0	1600	700

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)
MILK RIVER BASIN--Continued										
06170000 MCEACHERN CREEK AT INTERNATIONAL BOUNDARY (LAT 48 59 30 LONG 106 55 40)										
APR , 1980										
02...	28	17	120	4.4	8.6	70	330	4.1	.0	9.8
09...	21	10	71	3.2	7.1	71	160	3.2	.0	12
16...	28	12	81	3.2	7.3	120	160	4.0	.1	9.5
482250107391001 LAKE BOWDOIN NEAR MALTA MT (LAT 48 22 50 LONG 107 39 10)										
APR , 1980										
25...	20	280	1800	23	24	680	4100	150	.3	2.0
JUL										
01...	40	350	2400	27	28	810	5400	220	.5	.4
AUG										
28...	20	380	2900	31	31	910	6800	29	.5	.3

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS STATIONS

WATER QUALITY ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)
MILK RIVER BASIN--Continued									
06170000 MCEACHERN CREEK AT INTERNATIONAL BOUNDARY (LAT 48 59 30 LONG 106 55 40)									
APR , 1980									
02...	563	.77	13.7	.61	.19	2	< 1	110	< 1
09...	329	.45	8.17	.28	.01	2	< 1	120	< 1
16...	375	.51	.42	.13	.08	2	< 1	140	< 1
482250107391001 LAKE BOWDOIN NEAR MALTA, MT (LAT 48 22 50 LONG 107 39 10)									
APR , 1980									
25...	6790	9.23	--	.40	.04	--	--	--	--
JUL									
01...	8930	12.1	--	.05	.34	--	--	--	--
AUG									
28...	10700	14.6	--	.00	.02	--	--	--	--

DATE	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)
MILK RIVER BASIN--Continued									
06170000 MCEACHERN CREEK AT INTERNATIONAL BOUNDARY (LAT 48 59 30 LONG 106 55 40)									
APR , 1980									
02...	0	16	600	3	170	.1	6	0	6
09...	0	< 10	740	21	40	.1	0	0	10
16...	0	< 10	160	14	80	.1	0	0	< 3
482250107391001 LAKE BOWDOIN NEAR MALTA, MT (LAT 48 22 50 LONG 107 39 10)									
APR , 1980									
25...	--	--	--	--	--	--	--	--	--
JUL									
01...	--	--	--	--	--	--	--	--	--
AUG									
28...	--	--	--	--	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1979

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)
REDWATER RIVER BASIN												
06177150 REDWATER RIVER AT BROCKWAY, MT (LAT 47 19 00 LONG 105 45 00)												
OCT , 1979 25...	0900	.52	5000	8.4	10.5	6.5	1600	1200	190	280	740	8.0
473748105192901 REDWATER RIVER ABOVE COW CREEK, NEAR RICHEY, MT (LAT 47 37 48 LONG 105 19 29)												
OCT , 1979 25...	1125	3.3	3600	8.6	15.5	9.0	670	93	55	130	700	12
480111105182001 REDWATER RIVER 2 MILES SOUTH OF NICKWALL, MT (LAT 48 01 11 LONG 105 18 20)												
OCT , 1979 25...	1620	9.4	3000	8.6	16.5	10.0	570	24	46	110	570	10
480315105125001 REDWATER RIVER 0.75 MILE ABOVE MOUTH, NEAR POPLAR, MT (LAT 48 03 15 LONG 105 12 50)												
OCT , 1979 25...	1545	7.4	3100	8.7	--	8.0	520	0	43	100	610	12

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2) (00405)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)
REDWATER RIVER BASIN--Continued												
06177150 REDWATER RIVER AT BROCKWAY, MT (LAT 47 19 00 LONG 105 45 00)												
OCT , 1979 25...	12	520	12	450	3.5	2900	14	.3	2.7	4610	4410	6.27
473748105192901 REDWATER RIVER ABOVE COW CREEK, NEAR RICHEY, MT (LAT 47 37 48 LONG 105 19 29)												
OCT , 1979 25...	10	650	27	580	3.2	1500	12	.8	6.3	2680	2760	3.64
480111105182001 REDWATER RIVER 2 MILES SOUTH OF NICKWALL, MT (LAT 48 01 11 LONG 105 18 20)												
OCT , 1979 25...	9.9	620	20	540	2.7	1200	18	.7	5.3	2190	2290	2.98
480315105125001 REDWATER RIVER 0.75 MILE ABOVE MOUTH, NEAR POPLAR, MT (LAT 48 03 15 LONG 105 12 50)												
OCT , 1979 25...	10	620	34	560	2.2	1200	19	.7	3.6	2180	2330	2.96

WATER QUALITY DATA, WATER YEAR OCTOBER 1979, TO SEPTEMBER 1980

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
REDWATER RIVER BASIN--Continued												
06177150 REDWATER RIVER AT BROCKWAY, MT (LAT 47 19 00 LONG 105 45 00)												
OCT , 1979												
25...	6.47	.00	.00	.07	1.2	1.3	.02	.00	41	.1	1600	30
473748105192901 REDWATER RIVER ABOVE COW CREEK, NEAR RICHEY, MT (LAT 47 37 48 LONG 105 19 29)												
OCT , 1979												
25...	24.2	.01	.01	.01	1.1	1.1	.01	.01	9.1	.1	400	30
480111105182001 REDWATER RIVER 2 MILES SOUTH OF NICKWALL, MT (LAT 48 01 11 LONG 105 18 20)												
OCT , 1979												
25...	55.6	.00	.00	.04	.51	.55	.01	.00	8.8	.2	410	10
480315105125001 REDWATER RIVER 0.75 MILES ABOVE MOUTH, NEAR POPLAR, MT (LAT 48 03 15 LONG 105 12 50)												
OCT , 1979												
25...	43.6	.00	.03	.05	.63	.68	.01	.00	18	.1	410	20

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)
POPLAR RIVER BASIN												
490000105460001 POPLAR RIVER AT INTERNATIONAL BOUNDARY (LAT 49 00 00 LONG 105 46 00)												
OCT , 1979 24...	0945	2.8	1210	8.4	4.5	5.0	350	0	53	53	180	4.2
06178150 POPLAR RIVER NEAR SCOBEY, MT (LAT 48 52 23 LONG 105 29 50)												
OCT , 1979 24...	0945	3.4	1930	8.8	5.0	6.0	280	0	31	49	400	10
06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY (LAT 49 00 00 LONG 105 24 30)												
OCT , 1979 24...	0840	4.2	1320	8.4	1.5	5.0	320	0	62	40	190	4.6
06179000 EAST FORK POPLAR RIVER NEAR SCOBEY, MT (LAT 48 51 11 LONG 105 25 13)												
OCT , 1979 24...	1410	5.1	1390	8.8	13.0	7.5	280	0	31	50	210	5.4
484708105270601 POPLAR RIVER BELOW BUTTE CREEK, NEAR SCOBEY, MT (LAT 48 47 08 LONG 105 27 06)												
OCT , 1979 24...	1515	11	1730	8.8	10.0	7.5	310	0	31	56	320	7.9
06179200 POPLAR RIVER ABOVE WEST FORK, NEAR BREDETTE, MT (LAT 48 33 05 LONG 105 21 55)												
OCT , 1979 24...	1520	10	1550	8.6	12.5	7.5	280	0	32	49	280	7.3
06179500 WEST FORK POPLAR RIVER AT INTERNATIONAL BOUNDARY (LAT 49 00 00 LONG 106 22 00)												
OCT , 1979 24...	1010	.46	1260	9.0	5.0	5.0	170	0	22	27	240	8.1
485439106114401 WEST FORK POPLAR RIVER NEAR GLENTANA, MT (LAT 48 54 39 LONG 106 11 44)												
OCT , 1979 24...	1025	1.2	1000	9.0	5.5	5.5	130	0	15	22	200	7.7
484145105494901 WEST FORK POPLAR RIVER ABOVE HELL CREEK, NEAR PEERLESS, MT (LAT 48 41 45 LONG 105 49 49)												
OCT , 1979 24...	1550	5.3	1140	8.6	11.0	10.0	140	0	23	20	230	8.5
06180400 WEST FORK POPLAR RIVER NEAR BREDETTE, MT (LAT 48 33 01 LONG 105 25 42)												
OCT , 1979 24...	1600	7.0	1250	8.8	14.0	10.5	100	0	18	14	270	12
06180500 POPLAR RIVER NEAR BREDETTE, MT (LAT 48 25 00 LONG 105 12 00)												
OCT , 1979 25...	0945	20	1360	8.7	7.0	7.5	180	0	21	30	260	8.5
481608105051101 POPLAR RIVER ABOVE BADGER CREEK, NEAR POPLAR, MT (LAT 48 16 08 LONG 105 05 11)												
OCT , 1979 25...	0905	22	1380	8.8	6.0	7.0	190	0	24	31	280	8.9
480656105115001 POPLAR RIVER ABOVE BOXELDER CREEK, AT POPLAR, MT (LAT 48 06 56 LONG 105 11 50)												
OCT , 1979 25...	1155	23	2020	8.6	15.0	7.5	260	0	36	42	340	9.1

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS STATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2) (00405)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)
POPLAR RIVER BASIN--Continued												
490000105460001 POPLAR RIVER AT INTERNATIONAL BOUNDARY (LAT 49 00 00 LONG 105 46 00)												
OCT , 1979 24...	9.7	570	5	470	3.7	240	7.7	.4	12	802	843	1.09
06178150 POPLAR RIVER NEAR SCOBEY, MT (LAT 48 52 23 LONG 105 29 50)												
OCT , 1979 24...	9.3	720	55	680	2.1	410	15	.8	3.6	1250	1330	1.70
06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY (LAT 49 00 00 LONG 105 24 30)												
OCT , 1979 24...	11	540	7	450	3.5	270	6.4	.3	9.9	874	865	1.19
06179000 EAST FORK POPLAR RIVER NEAR SCOBEY, MT (LAT 48 51 11 LONG 105 25 13)												
OCT , 1979 24...	11	400	65	440	1.3	320	8.0	.4	2.0	909	896	1.24
484708105270601 POPLAR RIVER BELOW BUTTE CREEK, NEAR SCOBEY, MT (LAT 48 47 08 LONG 105 27 06)												
OCT , 1979 24...	11	590	38	550	1.7	420	13	.4	3.4	1170	1190	1.59
06179200 POPLAR RIVER ABOVE WEST FORK, NEAR BREDETTE, MT (LAT 48 33 05 LONG 105 21 55)												
OCT , 1979 24...	9.6	600	36	550	2.7	340	13	.4	6.1	1040	1060	1.41
06179500 WEST FORK POPLAR RIVER AT INTERNATIONAL BOUNDARY (LAT 49 00 00 LONG 106 22 00)												
OCT , 1979 24...	9.6	590	17	510	1.0	190	4.9	.4	3.4	803	806	1.09
485439106114401 WEST FORK POPLAR RIVER NEAR GLENTANA, MT (LAT 48 54 39 LONG 106 11 44)												
OCT , 1979 24...	9.9	440	55	450	.9	120	6.3	.6	1.1	623	647	.85
484145105494901 WEST FORK POPLAR RIVER ABOVE HELL CREEK, NEAR PEERLESS, MT (LAT 48 41 45 LONG 105 49 49)												
OCT , 1979 24...	5.6	560	22	490	2.4	150	6.5	.5	6.2	713	740	.97
06180400 WEST FORK POPLAR RIVER NEAR BREDETTE, MT (LAT 48 33 01 LONG 105 25 42)												
OCT , 1979 24...	4.2	560	29	510	1.6	180	7.1	.4	9.4	785	809	1.07
06180500 POPLAR RIVER NEAR BREDETTE, MT (LAT 48 25 00 LONG 105 12 00)												
OCT , 1979 25...	7.3	570	26	510	2.0	260	12	.4	6.1	919	905	1.25
481608105051101 POPLAR RIVER ABOVE BADGER CREEK, NEAR POPLAR, MT (LAT 48 16 08 LONG 105 05 11)												
OCT , 1979 25...	7.4	560	29	500	1.6	250	12	.4	7.1	873	918	1.19
480656105115001 POPLAR RIVER ABOVE BOXELDER CREEK, AT POPLAR, MT (LAT 48 06 56 LONG 105 11 50)												
OCT , 1979 25...	8.3	530	12	450	2.2	260	220	.4	6.9	1180	1190	1.60

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

POPLAR RIVER BASIN--Continued

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)	BORON, DIS-SOLVED (UG/L AS B) (01020)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
490000105460001 POPLAR RIVER AT INTERNATIONAL BOUNDARY (LAT 49 00 00 LONG 105 46 00)												
OCT , 1979 24...	6.15	.00	.01	.03	.68	.71	.01	.01	15	.2	1200	60
06178150 POPLAR RIVER NEAR SCOBEY, MT (LAT 48 52 23 LONG 105 29 50)												
OCT , 1979 24...	11.5	.02	.01	.01	.91	.92	.04	.01	13	.3	2100	20
06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY (LAT 49 00 00 LONG 105 24 30)												
OCT , 1979 24...	9.91	.25	.26	.19	.81	1.0	.02	.01	9.4	.1	1500	10
06179000 EAST FORK POPLAR RIVER NEAR SCOBEY, MT (LAT 48 51 11 LONG 105 25 13)												
OCT , 1979 24...	12.5	.00	.02	.09	1.0	1.1	.03	.01	9.8	.1	1600	20
484708105270601 POPLAR RIVER BELOW BUTTE CREEK, NEAR SCOBEY, MT (LAT 48 47 08 LONG 105 27 06)												
OCT , 1979 24...	35.1	.00	.01	.04	.78	.82	.02	.01	18	.2	1900	30
06179200 POPLAR RIVER ABOVE WEST FORK, NEAR BREDETTE, MT (LAT 48 33 05 LONG 105 21 55)												
OCT , 1979 24...	28.1	.00	.01	.00	1.1	1.1	.01	.00	15	.1	1600	< 10
06179500 WEST FORK POPLAR RIVER AT INTERNATIONAL BOUNDARY (LAT 49 00 00 LONG 106 22 00)												
OCT , 1979 24...	1.00	.02	.01	.07	.89	.96	.02	.01	20	.1	890	70
485439106114401 WEST FORK POPLAR RIVER NEAR GLENTANA, MT (LAT 48 54 39 LONG 106 11 44)												
OCT , 1979 24...	2.02	.10	.02	.02	1.1	1.1	.03	.01	14	.4	520	80
484145105494901 WEST FORK POPLAR RIVER ABOVE HELL CREEK, NEAR PEERLESS, MT (LAT 48 41 45 LONG 105 49 49)												
OCT , 1979 24...	10.2	.01	.00	.05	1.5	1.5	.01	.00	8.0	.2	600	50
06180400 WEST FORK POPLAR RIVER NEAR BREDETTE, MT (LAT 48 33 01 LONG 105 25 42)												
OCT , 1979 24...	14.8	.02	.01	.04	.77	.81	.01	.00	9.9	.0	600	50
06180500 POPLAR RIVER NEAR BREDETTE, MT (LAT 48 25 00 LONG 105 12 00)												
OCT , 1979 25...	50.4	.01	.01	.08	.78	.86	.01	.00	19	.2	1100	10
481608105051101 POPLAR RIVER ABOVE BADGER CREEK, NEAR POPLAR, MT (LAT 48 16 08 LONG 105 05 11)												
OCT , 1979 25...	51.9	.01	.00	.08	1.7	1.8	.01	.00	22	.1	960	10
480656105115001 POPLAR RIVER ABOVE BOXELDER CREEK, AT POPLAR, MT (LAT 48 06 56 LONG 105 11 50)												
OCT , 1979 25...	73.3	.02	.02	.07	.65	.72	.01	.00	19	.0	940	40

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS STATIONS

WATER QUALITY ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	WEATHER (WMO CODE NUMBER) (00041)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
ROSEBUD COUNTY												
455148106271601 01N42E01CDB 01 COW CREEK SPRING NUMBER 1 (LAT 45 51 48 LONG 106 27 16)												
NOV , 1979 07...	1400	E.01	1	4500	7.4	3.0	10.0	2.2	22	2400	2000	310
455217106301501 01N42E04ACA 01 COW CREEK SPRING NUMBER 2 (LAT 45 52 17 LONG 106 30 15)												
NOV , 1979 07...	1530	E.01	0	2740	7.4	.5	11.5	4.5	46	1400	1000	240
JUL , 1980 09...	1000	E.01	1	2800	6.6	27.0	13.5	3.6	38	1500	1100	230

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
ROSEBUD COUNTY--Continued												
455148106271601 01N42E01CDB 01 COW CREEK SPRING NUMBER 1 (LAT 45 51 48 LONG 106 27 16)												
NOV , 1979 07...	400	340	3.0	22	420	2700	23	.4	.2	.01	25	4080
455217106301501 01N42E04ACA 01 COW CREEK SPRING NUMBER 2 (LAT 45 52 17 LONG 106 30 15)												
NOV , 1979 07...	200	180	2.1	15	400	1300	21	.3	.1	.01	29	2230
JUL , 1980 09...	220	180	2.0	14	430	1300	11	.6	--	--	6.7	2220

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BERYL-LIUM, TOTAL RECOV-ERABLE (UG/L AS BE) (01012)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, DIS-SOLVED (UG/L AS B) (01020)
ROSEBUD COUNTY--Continued												
455148106271601 01N42E01CDB 01 COW CREEK SPRING NUMBER 1 (LAT 45 51 48 LONG 106 27 16)												
NOV , 1979 07...	5.55	E.11	.02	.04	.58	.62	.09	2	1	0	0	1700
455217106301501 01N42E04ACA 01 COW CREEK SPRING NUMBER 2 (LAT 45 52 17 LONG 106 30 15)												
NOV , 1979 07...	3.03	E.06	.06	.01	.71	.72	.00	1	1	0	0	1300
JUL , 1980 09...	3.02	E.01	.03	.03	.35	.38	.07	2	2	0	0	1100

WATER QUALITY ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
ROSEBUD COUNTY--Continued												
455148106271601 01N42E01CDB 01 COW CREEK SPRING NUMBER 1 (LAT 45 51 48 LONG 106 27 16)												
NOV , 1979 07...	0	0	8	4	5	0	4200	30	4	0	370	220
455217106301501 01N42E04ACA 01 COW CREEK SPRING NUMBER 2 (LAT 45 52 17 LONG 106 30 15)												
NOV , 1979 07...	0	0	0	4	0	0	30	20	0	0	10	20
JUL , 1980 09...	0	0	20	10	6	0	1300	40	5	0	50	10

DATE	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED (MG/L AS C) (00689)
ROSEBUD COUNTY--Continued											
455148106271601 01N42E01CDB 01 COW CREEK SPRING NUMBER 1 (LAT 45 51 48 LONG 106 27 16)											
NOV , 1979 07...	.0	.0	10	0	0	0	20	10	--	33	.5
455217106301501 01N42E04ACA 01 COW CREEK SPRING NUMBER 2 (LAT 45 52 17 LONG 106 30 15)											
NOV , 1979 07...	.0	.0	2	0	0	0	30	10	--	31	.0
JUL , 1980 09...	.0	.0	3	3	0	1	30	30	1.9	--	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

SMITH RIVER BASIN

06077000 SHEEP CREEK NEAR WHITE SULPHUR SPRINGS, MT (LAT 46 46 05 LONG 110 48 33)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SAMPLING DEPTH (M) (00098)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)
JUN , 1980												
04...	1100	72	--	1	260	8.3	14.0	6.0	5.7	10.3	102	130
JUL												
10...	1230	33	--	1	295	8.4	22.0	12.5	2.5	9.2	106	170

PRICKLY PEAR CREEK BASIN

462642112101901 PARK LAKE NEAR RIMINI, MT (LAT 46 26 42 LONG 112 10 19)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SAMPLING DEPTH (M) (00098)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)
JUN , 1980												
09...	1132	--	1.0	--	51	6.5	--	11.6	1.1	8.3	--	19
09...	1146	--	8.0	--	75	6.5	--	6.4	6.0	.2	--	25

YELLOWSTONE RIVER BASIN

06207900 BLUEWATER CREEK AT FROMBERG, MT (LAT 45 22 58 LONG 108 54 03)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SAMPLING DEPTH (M) (00098)	WEATHER (WMO CODE NUMBER) (00041)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	OXYGEN, DISSOLVED (PERCENT SATURATION) (00301)	HARDNESS (MG/L AS CACO3) (00900)
MAY , 1980												
29...	0815	E10	--	--	--	--	--	12.5	--	--	--	--

SMITH RIVER BASIN--Continued

06077000 SHEEP CREEK NEAR WHITE SULPHUR SPRINGS, MT (LAT 46 46 05 LONG 110 48 33)

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	ACIDITY TOTAL HEATED (MG/L AS H) (71825)	ACIDITY (MG/L AS CACO3) (00435)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
JUN , 1980												
04...	13	.0	.0	38	9.3	1.8	.1	1.3	130	7.9	1.0	.1
JUL												
10...	28	--	--	49	11	1.8	.1	1.3	170	8.5	1.2	.0

PRICKLY PEAR CREEK BASIN--Continued

462642112101901 PARK LAKE NEAR RIMINI, MT (LAT 46 26 42 LONG 112 10 19)

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	ACIDITY TOTAL HEATED (MG/L AS H) (71825)	ACIDITY (MG/L AS CACO3) (00435)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
JUN , 1980												
09...	0	.2	10	5.6	1.1	2.3	.2	.9	19	10	.6	.1
09...	0	.4	20	7.8	1.3	2.7	.2	1.1	26	8.3	.5	.1

YELLOWSTONE RIVER BASIN--Continued

06207900 BLUEWATER CREEK AT FROMBERG, MT (LAT 45 22 58 LONG 108 54 03)

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	ACIDITY TOTAL HEATED (MG/L AS H) (71825)	ACIDITY (MG/L AS CACO3) (00435)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
MAY , 1980												
29...	--	--	--	--	--	--	--	--	--	--	--	--

WATER QUALITY ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
SMITH RIVER BASIN--Continued												
06077000 SHEEP CREEK NEAR WHITE SULPHUR SPRINGS, MT (LAT 46 46 05 LONG 110 48 33)												
JUN , 1980 04...	6.7	151	139	.21	29.4	.01	.01	.00	.95	1.2	.45	1.2
JUL 10...	6.7	188	164	.26	16.9	.00	.00	.01	.01	.63	.63	.64
PRICKLY PEAR CREEK BASIN--Continued												
462642112101901 PARK LAKE NEAR RIMINI, MT (LAT 46 26 42 LONG 112 10 19)												
JUN , 1980 09...	6.0	40	39	.05	--	.00	.01	.01	.04	--	.39	--
09...	4.7	49	44	.07	--	.01	.01	.13	.16	.48	.43	.61
YELLOWSTONE RIVER BASIN--Continued--Continued												
C6207900 BLUEWATER CREEK AT FROMBERG, MT (LAT 45 22 58 LONG 108 54 03)												
MAY , 1980 29...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ANTI-MONY, TOTAL (UG/L AS SB) (01097)	ANTI-MONY, DIS-SOLVED (UG/L AS SB) (01095)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)
SMITH RIVER BASIN--Continued												
06077000 SHEEP CREEK NEAR WHITE SULPHUR SPRINGS, MT (LAT 46 46 05 LONG 110 48 33)												
JUN , 1980 04...	1.4	.01	.00	200	20	0	0	1	1	0	70	< 1
JUL 10...	.64	.01	.01	90	20	--	--	2	2	100	90	< 1
PRICKLY PEAR CREEK BASIN--Continued												
462642112101901 PARK LAKE NEAR RIMINI, MT (LAT 46 26 42 LONG 112 10 19)												
JUN , 1980 09...	.43	.06	.01	100	30	0	0	5	5	0	20	< 1
09...	.59	.01	.02	60	30	0	0	16	10	0	30	< 1
YELLOWSTONE RIVER BASIN--Continued												
06207900 BLUEWATER CREEK AT FROMBERG, MT (LAT 45 22 58 LONG 108 54 03)												
MAY , 1980 29...	--	--	--	--	--	--	--	--	--	--	--	--

WATER QUALITY ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
SMITH RIVER BASIN--Continued												
06077000 SHEEP CREEK NEAR WHITE SULPHUR SPRINGS, MT (LAT 46 46 05 LONG 110 48 33)												
JUN , 1980												
04...	10	20	1	< 1	0	0	0	< 3	7	< 10	350	18
JUL												
10...	30	10	1	2	10	0	0	< 3	8	< 10	210	16
PRICKLY PEAR CREEK BASIN--Continued												
462642112101901 PARK LAKE NEAR RIMINI, MT (LAT 46 26 42 LONG 112 10 19)												
JUN , 1980												
09...	20	30	0	< 1	0	0	0	< 3	8	< 10	190	90
09...	40	30	0	< 1	0	0	0	< 3	7	< 10	2700	890
YELLOWSTONE RIVER BASIN--Continued												
06207900 BLUEWATER CREEK AT FROMBERG, MT (LAT 45 22 58 LONG 108 54 03)												
MAY , 1980												
29...	--	--	--	--	--	--	--	--	--	--	--	--

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOV-ERABLE (UG/L AS LI) (01132)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)
SMITH RIVER BASIN--Continued											
06077000 SHEEP CREEK NEAR WHITE SULPHUR SPRINGS, MT (LAT 46 46 05 LONG 110 48 33)											
JUN , 1980											
04...	3	< 10	10	< 4	10	5	.1	.0	< 10	6	4
JUL											
10...	10	< 10	30	5	20	8	.2	.0	< 10	3	2
PRICKLY PEAR CREEK BASIN--Continued											
462642112101901 PARK LAKE NEAR RIMINI, MT (LAT 46 26 42 LONG 112 10 19)											
JUN , 1980											
09...	5	< 10	10	4	20	9	.2	.1	< 10	11	0
09...	6	< 10	0	< 4	500	510	.2	.1	< 10	7	1
YELLOWSTONE RIVER BASIN--Continued											
06207900 BLUEWATER CREEK AT FROMBERG, MT (LAT 45 22 58 LONG 108 54 03)											
MAY , 1980											
29...	--	--	--	--	--	--	--	--	--	--	--

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

WATER QUALITY ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

SMITH RIVER BASIN--Continued

06077000 SHEEP CREEK NEAR WHITE SULPHUR SPRINGS, MT (LAT 46 46 05 LONG 110 48 33)

DATE	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
JUN , 1980											
04...	0	0	0	0	130	< 6.0	40	8	16	3.1	61
JUL											
10...	0	0	0	0	140	< 3.0	10	6	5	.45	79

PRICKLY PEAR CREEK BASIN--Continued

462642112101901 PARK LAKE NEAR RIMINI, MT (LAT 46 26 42 LONG 112 10 19)

DATE	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
JUN , 1980											
09...	0	0	0	0	70	< 6.0	80	31	--	--	--
09...	0	0	0	0	95	< 6.0	50	14	--	--	--

YELLOWSTONE RIVER BASIN--Continued

06207900 BLUEWATER CREEK AT FROMBERG, MT (LAT 45 22 58 LONG 108 54 03)

DATE	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOVERABLE (UG/L AS AG) (01077)	SILVER, DISSOLVED (UG/L AS AG) (01075)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
MAY , 1980											
29...	--	--	--	--	--	--	--	--	111	3.0	90

PRICKLY PEAR CREEK BASIN--Continued

462642112101901 PARK LAKE NEAR RIMINI, MT (LAT 46 26 42 LONG 112 10 19)

DATE	TIME	SAMPLING DEPTH (M) (00098)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE, WATER (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)
JUN , 1980						
09...	1130	.00	51	6.4	11.8	8.3
09...	1131	.50	51	6.4	11.7	8.2
09...	1132	1.0	51	6.5	11.6	8.3
09...	1133	1.5	52	6.4	10.3	8.1
09...	1134	2.0	52	6.4	10.0	8.1
09...	1135	2.5	52	6.5	9.7	8.0
09...	1136	3.0	52	6.5	9.6	8.2
09...	1137	3.5	51	6.6	9.4	7.9
09...	1138	4.0	51	6.6	9.1	7.5
09...	1139	4.5	51	6.6	8.7	7.3
09...	1140	5.0	52	6.6	8.2	5.8
09...	1141	5.5	56	6.6	7.4	2.5
09...	1142	6.0	56	6.6	7.0	.9
09...	1143	6.5	62	6.5	6.7	.2
09...	1144	7.0	63	6.5	6.6	.2
09...	1145	7.5	67	6.5	6.4	.2
09...	1146	8.0	75	6.5	6.4	.2
09...	1147	8.5	76	6.5	6.3	.2
09...	1148	9.0	76	6.4	6.3	.2

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS STATIONS

WATER QUALITY ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

LEWIS AND CLARK COUNTY

463610112030001 KNAPTON RESIDENCE AT HELENA, MT (LAT 46 36 10 LONG 112 03 00)
ATMOSPHERIC DEPOSITION--WETFALL

DATE	PRECIP- ITATION (IN)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) (00095)	PH (UNITS) (00400)	HARD- NESS (MG/L AS CACO3) (00900)	ACIDITY (MG/L AS CACO3) (00435)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)
JUL , 1980												
12-13	.26	12	6.0	--	--	.9	< .004	.3	--	.08	6	< 1
AUG												
11-12	.15	60	7.2	27	--	8.5	1.5	1.0	.1	1.5	20	< 1
18...	.10	55	7.6	24	--	7.8	1.2	.7	.1	1.4	20	< 1
SEP												
07-08	.38	14	4.8	2	--	.6	.085	< .2	--	.1	4	< 1
11...	.49	5	5.3	< 1	--	.2	.009	< .2	--	.04	< 2	< 1
11-12	.44	16	4.7	2	--	.3	.25	< .2	--	.08	3	< 1
18-19	.30	12	4.9	2	--	.6	.085	< .2	--	.07	6	< 1

MADISON COUNTY

452248112272501 REBICH RESIDENCE NEAR TWIN BRIDGES, MT (LAT 45 22 48 LONG 112 27 25)
ATMOSPHERIC DEPOSITION--WETFALL

DATE	PRECIP- ITATION (IN)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) (00095)	PH (UNITS) (00400)	HARD- NESS (MG/L AS CACO3) (00900)	ACIDITY (MG/L AS CACO3) (00435)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)
JUL , 1980												
01...	.10	--	6.4	7	--	2.4	.24	.3	.1	.14	7	< 1
03...	.72	5	5.9	2	--	.3	.24	< .2	--	.02	< 2	< 1
29-31	.14	--	5.3	11	--	3.9	.41	.2	.0	.18	10	< 1
AUG												
11-12	.30	--	--	--	--	--	--	--	--	--	--	--
14-15	.17	42	6.4	--	--	--	--	--	--	--	--	--
25-26	.29	19	5.1	--	--	--	--	--	--	--	--	--
SEP												
01-02	.14	24	6.1	--	--	--	--	--	--	--	--	--
07-08	.50	9	5.7	2	--	.7	.12	< .2	--	.09	5	< 1
10-11	.72	5	5.4	--	--	.2	< .004	< .2	--	.02	2	< 1
11-12	.30	5	5.7	1	--	.1	.072	< .2	--	.06	2	< 1
12-13	.44	7	5.5	--	--	.2	< .004	< .2	--	.04	3	< 1
21-22	.16	18	6.1	4	--	1.3	.14	.5	.1	.12	10	< 1

STILLWATER COUNTY

453745108544301 FOLLINGLO RESIDENCE AT PARK CITY, MT (LAT 45 37 45 LONG 108 54 43)
ATMOSPHERIC DEPOSITION--WETFALL

DATE	PRECIP- ITATION (IN)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) (00095)	PH (UNITS) (00400)	HARD- NESS (MG/L AS CACO3) (00900)	ACIDITY (MG/L AS CACO3) (00435)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO (00931)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)
AUG , 1980												
12...	.37	155	9.0	91	--	8.3	17	6.7	.4	7.5	10	< 1
15...	.48	13	6.5	3	4.3	.9	.21	< .2	--	.13	3	< 1
27...	.11	61	7.3	28	--	9.5	.91	.3	.0	2.7	10	< 1
SEP												
08...	.21	38	7.5	16	--	5.7	.36	.6	.1	1.0	7	< 1
11...	.45	27	7.6	--	--	--	--	--	--	--	--	--
12...	.11	62	7.5	14	--	5.0	.23	< .2	--	.67	8	< 1
12-16	.10	32	6.3	5	--	1.6	.19	.5	.1	.26	6	< 1
21...	.14	8	6.1	2	--	.7	.14	< .2	--	.06	2	< 1
23-24	.15	14	5.3	3	--	.8	.16	< .2	--	.14	6	< 1
24-25	.41	8	5.0	2	5.8	.3	.25	< .2	--	.08	20	< 1

WATER QUALITY ANALYSES, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

LEWIS AND CLARK COUNTY--Continued

463610112030001 KNAPTON RESIDENCE AT HELENA, MT (LAT 46 36 10 LONG 112 03 00)
ATMOSPHERIC DEPOSTION--WETFALL

DATE	CADMIUM DISSOLVED (UG/L AS CD) (01025)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
JUL , 1980											
12-13	< 1	< 3	< 10	< 10	< 10	< 4	13	< 10	2	< 6.0	11
AUG											
11-12	1	< 3	< 10	< 10	14	< 4	2	< 10	50	< 6.0	16
18...	1	< 3	< 10	17	21	5	2	< 10	43	< 6.0	5
SEP											
07-08	< 1	< 3	20	18	< 10	< 4	7	< 10	2	7.0	16
11...	< 1	< 3	< 10	< 10	16	< 4	< 1	< 10	< 1	< 6.0	< 3
11-12	< 1	< 3	< 10	22	< 10	< 4	3	< 10	1	< 6.0	12
18-19	3	< 3	11	23	21	< 4	5	< 10	2	< 6.0	12

MADISON COUNTY--Continued

452248112272501 REBICH RESIDENCE NEAR TWIN BRIDGES, MT (LAT 45 22 48 LONG 112 27 25)
ATMOSPHERIC DEPOSTION--WETFALL

DATE	CADMIUM DISSOLVED (UG/L AS CD) (01025)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
JUL , 1980											
01...	3	< 3	< 10	< 10	< 10	< 4	21	< 10	7	< 6.0	43
03...	< 1	< 3	< 10	< 10	< 10	< 4	< 1	< 10	4	< 6.0	11
29-31	< 1	< 3	< 10	< 10	< 10	< 4	38	< 10	11	< 3.0	7
AUG											
11-12	--	--	--	--	--	--	--	--	--	--	--
14-15	--	--	--	--	--	--	--	--	--	--	--
25-26	--	--	--	--	--	--	--	--	--	--	--
SEP											
01-02	--	--	--	--	--	--	--	--	--	--	--
07-08	< 1	< 3	< 10	< 10	< 10	< 4	6	< 10	2	< 6.0	< 3
10-11	< 1	< 3	< 10	< 10	< 10	< 4	2	< 10	< 1	< 6.0	< 3
11-12	1	< 3	< 10	< 10	< 10	< 4	< 1	< 10	1	< 6.0	15
12-13	< 1	< 3	< 10	< 10	< 10	< 4	2	< 10	< 1	< 6.0	8
21-22	< 1	< 3	< 10	< 10	< 10	< 4	11	< 10	5	< 3.0	18

STILLWATER COUNTY--Continued

453745108544301 FOLLINGLO RESIDENCE AT PARK CITY, MT(LAT 45 37 45 LONG 108 54 43)
ATMOSPHERIC DEPOSITION--WETFALL

DATE	CADMIUM DISSOLVED (UG/L AS CD) (01025)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	LITHIUM DISSOLVED (UG/L AS LI) (01130)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MOLYBDENUM, DISSOLVED (UG/L AS MO) (01060)	STRONTIUM, DISSOLVED (UG/L AS SR) (01080)	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
AUG , 1980											
12...	2	< 3	< 10	< 10	37	10	1	< 10	240	< 6.0	< 3
15...	2	< 3	16	< 10	14	< 4	6	< 10	10	< 6.0	10
27...	< 1	< 3	< 10	< 10	< 10	< 4	< 1	< 10	120	< 6.0	< 3
SEP											
08...	< 1	< 3	< 10	< 10	< 10	< 4	< 1	< 10	63	< 6.0	< 3
11...	--	--	--	--	--	--	--	--	--	--	--
12...	1	< 3	< 10	10	< 10	< 4	4	11	56	< 6.0	< 3
12-16	1	< 3	< 10	< 10	< 10	< 4	17	< 10	13	< 10	14
21...	< 1	< 3	16	< 10	< 10	< 4	10	< 10	3	< 6.0	12
23-24	< 1	< 3	< 10	< 10	< 10	< 4	15	< 10	5	< 3.0	26
24-25	< 1	< 3	< 10	< 10	18	< 4	3	< 10	2	4.0	12

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	WEATHER (WMO CODE NUMBER) (00041)
SUN RIVER BASIN						
06080900 SUN RIVER BELOW DIVERSION DAM, NEAR AUGUSTA, MT (LAT 47 37 10 LONG 112 41 28)						
NOV , 1979						
07...	1320	72	438	--	4.0	--
FEB , 1980						
01...	1045	55	483	4.5	1.5	2
MAR						
03...	1300	62	479	-12.0	2.0	3
APR						
14...	1040	49	410	13.0	4.0	0
MAY						
12...	1700	269	230	14.5	8.5	1
JUN						
02...	1545	2830	202	16.5	8.5	51
JUL						
14...	1315	107	250	20.5	10.0	1
MARIAS RIVER BASIN						
06091700 TWO MEDICINE RIVER BELOW SOUTH FORK, NEAR BROWNING, MT (LAT 48 25 36 LONG 112 59 20)						
NOV , 1979						
08...	1015	16	290	--	1.0	--
MAR , 1980						
05...	1200	46	357	-10.0	.0	0
APR						
15...	1150	277	251	4.0	2.5	1
MAY						
13...	1710	686	129	15.0	11.5	1
JUN						
03...	1715	1340	167	11.5	9.5	1
JUL						
15...	1200	185	176	18.5	14.0	0
06093200 BADGER CREEK BELOW FOUR HORNS CANAL, NEAR BROWNING, MT (LAT 48 22 12 LONG 112 48 07)						
NOV , 1979						
08...	1515	54	616	--	3.5	--
MAR , 1980						
05...	1600	61	633	-5.0	2.0	0
APR						
15...	1500	121	531	10.5	8.5	1
MAY						
13...	1230	416	322	15.5	7.0	0
JUN						
03...	1540	804	351	12.0	7.0	1
JUL						
15...	1630	154	488	20.5	16.0	1
06099500 MARIAS RIVER NEAR SHELBY, MT (LAT 48 25 38 LONG 111 53 20)						
JAN , 1980						
23...	1630	161	789	--	.0	3
FEB						
26...	1215	210	685	10.0	.0	1
MAR						
24...	1200	300	791	9.0	.0	2
APR						
18...	0730	1020	610	14.0	10.0	1
MAY						
21...	1530	1820	271	--	16.5	--
27...	1230	9730	616	--	8.5	--
JUN						
23...	1145	2120	364	--	--	3
JUL						
17...	1345	438	572	25.0	20.5	1
AUG						
21...	1030	530	567	18.0	16.0	80
SEP						
25...	1230	431	516	19.0	10.0	0

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE, AIR (DEG C) (00020)	TEMPERATURE, WATER (DEG C) (00010)	WEATHER (WMO CODE NUMBER) (00041)
MILK RIVER BASIN						
06154400 PEOPLES CREEK NEAR HAYS, MT (LAT 48 13 35 LONG 108 42 40)						
OCT , 1979						
17...	1130	.10	3600	15.0	9.5	1
NOV						
20...	1215	3.4	1330	4.5	.0	0
DEC						
12...	1250	7.2	1190	-1.0	.0	2
FEB , 1980						
20...	1300	3.1	1520	--	--	40
JUN						
26...	1410	.14	2220	24.0	23.0	1
SEP						
24...	1100	.10	4200	9.0	8.0	2
06174000 WILLOW CREEK NEAR GLASGOW, MT (LAT 48 06 52 LONG 106 40 15)						
MAR , 1980						
24...	1145	4.0	1120	5.0	3.5	1
YELLOWSTONE RIVER BASIN						
06216000 PRYOR CREEK AT PRYOR, MT (LAT 45 26 06 LONG 108 32 01)						
NOV , 1979						
07...	1530	37	525	--	7.0	--
29...	1000	22	527	--	2.5	--
JAN , 1980						
24...	0855	35	517	--	4.0	--
FEB						
25...	1030	33	518	--	1.0	--
APR						
08...	0950	43	527	--	4.0	--
JUN						
02...	0950	25	532	--	12.8	--
JUL						
16...	1125	12	536	--	16.0	--
AUG						
14...	0950	20	502	--	15.0	--
SEP						
09...	1020	25	497	19.0	12.0	3
06216900 PRYOR CREEK NEAR HUNTLEY, MT (LAT 45 49 19 LONG 108 17 23)						
OCT , 1979						
01...	1315	48	1050	--	15.5	--
DEC						
10...	1220	76	1140	--	2.0	--
JAN , 1980						
21...	1210	53	750	--	.0	--
APR						
04...	1200	178	1300	--	7.5	--
MAY						
12...	1600	123	1200	--	15.5	--
JUN						
11...	1440	57	1290	--	24.0	--
JUL						
22...	1110	13	1880	26.0	23.0	0
AUG						
19...	0945	19	1550	18.0	17.0	2
SEP						
16...	0920	25	1270	6.0	12.0	2
06217950 BUFFALO CREEK NEAR CUSTER, MT (LAT 46 08 02 LONG 107 37 47)						
OCT , 1979						
01...	1445	.02	8250	19.0		

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	TEMPER-ATURE, AIR (DEG C) (00020)	TEMPER-ATURE, WATER (DEG C) (00010)	WEATHER (WMO CODE NUMBER) (00041)
YELLOWSTONE RIVER BASIN						
06289000 LITTLE BIGHORN RIVER AT STATE LINE, NEAR WYOLA, MT (LAT 45 00 25 LONG 107 37 05)						
OCT , 1979						
19...	1400	81	346	--	7.0	--
NOV						
08...	1415	75	332	--	4.0	--
DEC						
06...	1500	81	272	--	4.0	--
JAN , 1980						
16...	1645	70	353	7.0	1.5	0
FEB						
19...	1330	62	345	6.0	4.0	--
MAR						
25...	1300	56	341	2.0	3.5	--
APR						
22...	1410	114	318	20.0	7.5	1
JUN						
04...	1305	304	268	19.0	8.0	2
JUL						
24...	1540	116	310	28.0	15.0	0
AUG						
20...	1350	98	313	20.0	10.5	2
SEP						
17...	1520	87	323	24.0	10.5	2
06290500 LITTLE BIGHORN RIVER BELOW PASS CREEK, NEAR WYOLA, MT (LAT 45 10 38 LONG 107 23 36)						
OCT , 1979						
19...	1155	119	608	--	9.5	--
NOV						
08...	1310	123	612	--	3.0	--
DEC						
06...	1320	122	541	--	2.8	--
JAN , 1980						
16...	1340	120	614	8.0	.0	0
FEB						
19...	1150	110	626	9.0	.0	--
MAR						
25...	1120	142	703	1.0	2.0	--
APR						
22...	1115	212	604	19.0	13.5	1
JUN						
04...	1540	410	430	21.0	15.5	1
JUL						
24...	1445	108	527	30.0	21.0	1
AUG						
20...	1220	101	533	20.0	15.0	2
SEP						
17...	1300	93	554	19.0	13.5	2
06291000 OWL CREEK NEAR LODGE GRASS, MT (LAT 45 15 58 LONG 107 18 00)						
NOV , 1979						
08...	1015	12	1010	--	.5	--
DEC						
06...	1100	21	917	--	.0	--
JAN , 1980						
16...	1020	18	818	.0	.0	1
FEB						
19...	0905	2.5	1140	7.0	.0	--
MAR						
25...	0930	54	581	3.0	4.0	70
APR						
22...	0930	23	982	18.0	14.0	1
JUN						
04...	1730	18	900	18.0	21.0	1
JUL						
24...	0920	4.6	1070	26.0	19.0	2
AUG						
20...	1000	4.4	1070	20.0	16.0	2
SEP						
17...	1055	4.1	1200	22.0	12.5	2

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

LITTLE MISSOURI RIVER BASIN

06336515 HAY CREEK NEAR WIBAUX, MT (LAT 46 59 31 LONG 104 06 12)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE, WATER (DEG C) (00010)
OCT , 1979				
02...	1430	.01	2350	16.0
NOV				
05...	1115	.01	2200	8.0
20...	1130	.01	2050	1.5
DEC				
18...	1210	.01	2100	.5
MAR , 1980				
18...	1145	.28	1600	.0
19...	1130	.41	1600	.0
24...	1125	.25	2100	.5
28...	1215	.10	2050	1.0
31...	1300	.10	2100	1.0
APR				
01...	1545	.09	2400	1.5
04...	1425	.08	1800	4.0
10...	1455	.05	1600	5.0
15...	1255	.07	2600	8.5
22...	1225	.06	2600	8.5
MAY				
08...	1350	.02	2300	12.0
JUN				
10...	1115	.01	*2620	19.5
JUL				
07...	1335	.00	2500	25.0

* Laboratory value

06336545 LITTLE BEAVER CREEK NEAR WIBAUX, MT (LAT 47 03 44 LONG 104 05 30)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	TEMPERATURE, WATER (DEG C) (00010)
OCT , 1979				
01...	1520	.06	1800	17.0
NOV				
13...	1520	1.8	3400	4.0
20...	1345	.16	3000	2.0
JAN , 1980				
03...	1155	.13	4900	.5
FEB				
04...	1215	.20	5000	1.0
MAR				
11...	1235	2.0	1700	.5
18...	1640	12	1150	.0
19...	1550	2.9	1100	.0
24...	1245	9.5	1250	.5
28...	1415	8.8	1600	1.0
31...	1410	5.6	1275	2.0
APR				
04...	1350	3.6	1600	4.0
10...	1335	1.5	1650	5.0
JUN				
10...	1005	.15	3500	19.0
JUL				
07...	1415	.02	3300	24.0
SEP				
02...	1230	.06	3400	20.0

CASCADE COUNTY

472651111221101. Local number 20N03E32AADD01.
LOCATION.--Lat 47°26'51", long 111°22'11", Hydrologic Unit 10030102, at Sun River Bench, Great Falls. Owner: D. Van Hining.
AQUIFER.--Flood Member of Blackleaf Formation.
WELL CHARACTERISTICS.--Drilled domestic artesian well, diameter 6 in (0.15 m), depth 88 ft (26.8 m), cased with plastic pipe, open end.
DATUM.--Land-surface datum is 3,722 ft (1,134 m), from topographic map. Measuring point: Top of casing, 1.0 ft (0.30 m) above land-surface datum.
PERIOD OF RECORD.--May 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water-level measured, 31.10 ft (9.479 m) below land-surface datum, Dec. 23, 1965; lowest, 45.87 ft (13.981 m) below land-surface datum, Feb. 8, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 2	42.68	June 17	40.07
Feb. 8	45.87		

CHOTEAU COUNTY

481542110023501. Local number 29N13E21AA02.
LOCATION.--Lat 48°15'42", long 110°02'35", Hydrologic Unit 10050005. Owner: U.S. Geological Survey.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARASTERISTICS.--Drilled observation artesian well, diameter 2 in (0.06 m), depth 210 ft (64.0 m), cased to 167 ft (50.9 m), open end.
DATUM.--Land-surface datum is 2,680 ft (817 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.4 ft (0.12 m) above land-surface datum.
REMARKS.--Water-level affected by nearby irrigation well pumpage.
PERIOD OF RECORD.--1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 15.28 ft (4.657 m) below land-surface datum, Aug. 2, 1972; lowest, 27.03 ft (8.239 m) below land-surface datum, July 28, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 31	21.73	June 27	22.00
Mar. 11	21.25	Aug. 27	23.75

GALLATIN COUNTY

453937111110301. Local number 02S04E13CCB01.
LOCATION.--Lat 45°39'37", long 111°11'03", Hydrologic Unit 10020008. Owner: H. Nicely.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Dug observation water-table well, diameter 12 in (0.30 m), depth 11 ft (3.4 m), cased with tile.
DATUM.--Land-surface datum is 4,738 ft (1,444 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.5 ft (0.15 m) above land-surface datum.
PERIOD OF RECORD.--June 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.54 ft (0.774 m) below land-surface datum, June 27, 1952; lowest, 10.40 ft (3.170 m) below land-surface datum, Feb. 20, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 4	6.94	Mar. 20	6.97
Nov. 15	8.01	June 1	7.10
Dec. 18	8.48	July 25	5.11
Feb. 1	8.65	Sept. 4	4.05

GLACIER COUNTY

483345113004501. Local number, 32N11W03DAD01.
LOCATION.--Lat 48°33'45", long 113°00'45", Hydrologic Unit 10030202. Owner: U.S. Geological Survey.
AQUIFER.--Glacier drift of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled observation water-table well, diamter 1 1/4 in (3 cm), depth 12 ft (3.7 m), cased with pipe.
DATUM.--Land-surface datum is 4,360 ft (1,329 m), formerly 4,416 ft (1,346 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of pipe, 3.3 ft (1.01 m) above land-surface datum.
PERIOD OF RECORD.--January 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 4.43 ft (1.350 m) below land-surface datum, May 2; 1979, lowest, 7.82 ft (2.384 m) below land-surface datum, Aug. 2, and Aug. 28, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 9	7.68	Mar. 5	6.43
Dec. 20	7.25	Apr. 15	6.12
Jan. 24	7.11		

HILL COUNTY

483138109480801. Local number, 32N15E17DDD01.
LOCATION.--Lat 48°31'31", long 109°48'08", Hydrologic Unit 10050004. Owner: U.S. Geological Survey.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in (0.8 cm), depth 180 ft (54.9 m), cased with pipe to 152 ft (46.3 m).
DATUM.--Land-surface datum is 2,580 ft (786 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of coupling, 0.2 ft (0.08 m) above land-surface datum.
PERIOD OF RECORD.--May 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 38.22 ft (11.649 m) below land-surface datum, Apr. 15, 1980 lowest, 52.56 ft (16.020 m) below land-surface datum, June 18, 1947.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 30	38.65	May. 23	38.30
Nov. 27	38.65	June 24	38.37
Jan. 3	38.57	July 22	38.46
Mar. 11	38.40	Aug. 27	38.75
Apr. 15	38.22		

PHILLIPS COUNTY

482732107201201. Local number, 31N34E08CA01.
LOCATION.--Lat 48°27'32", long 107°20'12", Hydrologic Unit 10050014. Owner: W.D. Miller.
AQUIFER.--Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 5 in (13 cm), depth 15 ft (4.6 m), cased with pipe.
DATUM.--Land-surface datum is 2,175 ft (663 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.70 ft (0.518 m) above land-surface datum.
REMARKS.--Originally drilled to depth of 50 ft (15.2 m) with gravel from 45 to 50 ft (13.7 to 15.2 m).
PERIOD OF RECORD.--June 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.40 ft (0.122 m) below land-surface datum, July 18, 1963; lowest, 6.90 ft (2.103 m) below land-surface datum, Mar. 11, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 21	4.24	May 12	4.72
Dec. 13	5.27	June 24	4.69
Jan. 8	4.36	July 24	4.64
Feb. 19	4.49	Aug. 26	4.59
Mar. 18	4.65	Sept. 25	4.56

PRAIRIE COUNTY

464457104390001. Local number, 12N56E34DA01.
LOCATION.--Lat 46°44'57", long 104°39'00", Hydrologic Unit 10100004. Owner: Shell Oil Company.
AQUIFER.--Basal Hell Creek-Fox Hills Sandstone.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 4 in (0.1 m), depth 1,467 ft (447.1 m), cased with pipe.
DATUM.--Land-surface datum is 2,707 ft (825 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 3.1 ft (0.94 m) above land-surface datum.
REMARKS.--Water level affected by industrial pumpage.
PERIOD OF RECORD.--December 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 224.89 ft (68.546 m) below land-surface datum, Dec. 13, 1962; lowest, 382.45 ft (116.571 m) below land-surface datum, May 26, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 4	296.28	May 13	298.24
Nov. 8	302.70	June 17	299.49
Dec. 15	301.50	July 18	299.19
Mar. 25	295.80	Aug. 26	291.50
Apr. 17	292.90	Sept. 17	291.57

PRAIRIE COUNTY

464624104380601. Local number, 12N56E23DC01.
LOCATION.--Lat 46°46'24", long 104°38'06", Hydrologic Unit 10100004. Owner: Shell Oil Company.
AQUIFER.--Basal Hell Creek-Fox Hills Sandstone.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 4 in (0.1 m), depth 1,185 ft (361.2 m), cased with pipe.
DATUM.--Land-surface datum is 2,701 ft (823 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 1.5 ft (0.46 m) above land-surface datum.
REMARKS.--Water level affected by industrial pumpage.
PERIOD OF RECORD.--October 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 219.50 ft (66.904 m) below land-surface datum, Oct. 5, 1962; lowest, 493.84 ft (150.522 m) below land-surface datum, Mar. 3, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 4	293.16	May 13	299.40
Nov. 8	297.50	June 17	300.34
Dec. 15	298.58	July 18	287.04
Mar. 24	303.40	Aug. 26	286.95
Apr. 17	289.13	Sept. 17	287.43

TOOLE COUNTY

485311111540901. Local number, 36N02W08CC01.
LOCATION.--Lat 48°53'11", long 111°54'09", Hydrologic Unit 10030203. Owner: C. Luckenbill.
AQUIFER.--Gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Driven observation water-table well in backfilled dug well, diameter 1 1/4 in (0.03 m), depth 15.3 ft (4.66 m), cased with pipe.
DATUM.--Land-surface datum is 3,330 ft (1,015 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of pipe at land-surface datum.
PERIOD OF RECORD.--July 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.22 ft (0.372 m) below land-surface datum, May 16, 1967; lowest, 10.89 ft (3.319 m) below land-surface datum, Dec. 19, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1979 TO SEPTEMBER 1980

DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 6	7.50	Mar. 4	6.42
Dec. 18	6.45	Apr. 14	3.21

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October 1, 1978

FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	$2.54\text{x}10^{1}$	millimeters (mm)
	$2.54\text{x}10^{-2}$	meters (m)
feet (ft)	$3.048\text{x}10^{-1}$	meters (m)
miles (mi)	$1.609\text{x}10^{0}$	kilometers (km)
	Area	
acres	$4.047\text{x}10^{3}$	square meters (m^2)
	$4.047\text{x}10^{-1}$	square hectometers (hm^2)
	$4.047\text{x}10^{-3}$	square kilometers (km^2)
square miles (mi^2)	$2.590\text{x}10^{0}$	square kilometers (km^2)
	Volume	
gallons (gal)	$3.785\text{x}10^{0}$	liters (L)
	$3.785\text{x}10^{0}$	cubic decimeters (dm^3)
	$3.785\text{x}10^{-3}$	cubic meters (m^3)
million gallons	$3.785\text{x}10^{3}$	cubic meters (m^3)
	$3.785\text{x}10^{-3}$	cubic hectometers (hm^3)
cubic feet (ft^3)	$2.832\text{x}10^{1}$	cubic decimeters (dm^3)
	$2.832\text{x}10^{-2}$	cubic meters (m^3)
cfs-days	$2.447\text{x}10^{3}$	cubic meters (m^3)
	$2.447\text{x}10^{-3}$	cubic hectometers (hm^3)
acre-feet (acre-ft)	$1.233\text{x}10^{3}$	cubic meters (m^3)
	$1.233\text{x}10^{-3}$	cubic hectometers (hm^3)
	$1.233\text{x}10^{-6}$	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	$2.832\text{x}10^{1}$	liters per second (L/s)
	$2.832\text{x}10^{1}$	cubic decimeters per second (dm^3/s)
	$2.832\text{x}10^{-2}$	cubic meters per second (m^3/s)
gallons per minute (gal/min)	$6.309\text{x}10^{-2}$	liters per second (L/s)
	$6.309\text{x}10^{-2}$	cubic decimeters per second (dm^3/s)
	$6.309\text{x}10^{-5}$	cubic meters per second (m^3/s)
million gallons per day	$4.381\text{x}10^{1}$	cubic decimeters per second (dm^3/s)
	$4.381\text{x}10^{-2}$	cubic meters per second (m^3/s)
	Mass	
tons (short)	$9.072\text{x}10^{-1}$	megagrams (Mg) or metric tons